Medical Life

JAN 5 1927

The

British Medical Journal

THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION.

Including an Epitome of Current Medical Literature.

WITH SUPPLEMENT.

No. 3442. SATURDAY, DECEMBER 25, 1926. Price 1/3

A NOTE OF WARNING!

DOUBT having been expressed by a medical practitioner in a recent issue of the BRITISH MEDICAL JOURNAL as to the efficiency of Dimol when taken in the form of pulverettes, we desire once more to call attention to the fact that, *where there is a deficiency of pancreatic enzyme, all keratin-coated tablets or pulverettes are liable to pass undissolved throughout the intestinal tract.*

For this reason, and at the suggestion of various correspondents, sugar-coated B Dimol pulverettes (yellow) have been prepared and found to give most gratifying results. They are partially dissolved in their passage through the stomach, but the action of Dimol is not impaired thereby, and is free to exert its powerful influence immediately after its passage through the pylorus: whereas the keratin-coated A Dimol pulverettes (white), even under the most favourable conditions, cannot be expected to get to work so quickly, and may even, as above explained, pass undissolved.

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DIFFICULT OCCIPITO-POSTERIOR PRESENTATIONS.

DR. JOHN T. MACLACHLAN (Glasgow) writes: These presentations often worry young practitioners, who find that the head, after it has come well down to the ischial spines, obstinately stays there. Teachers advise patience and caution, as rotation is said to occur in the vast majority of cases of persistent occipital presentations. The chief difficulty appears to be that the head is not properly flexed, and its long diameter thrown across the pelvis. Young practitioners in such cases should be warned against pushing the head back and turning. I have known of two deaths brought about in this way from rupture of the uterus. I have usually succeeded by applying forceps and extracting slowly. I have known one or two young practitioners fail, as the forceps kept sliding off the head. This can be overcome, in my experience, by, in the first instance, pulling towards the sacrum, before making the pubic turn, with the instruments. Many years ago, when I was inexperienced, I put a woman across the bed on her knees and elbows, slipped my fingers up the rectum over the occiput, and pulled the occiput down, thus flexing the head; the head, thus well flexed, was born immediately.

RAPID DELIVERY IN PLACENTA PRAEVIA.

DR. CHARLES J. HILL AITKEN (Kilnhurst, Rotherham) writes: After the second haemorrhage in a marginal placenta praevia in a primipara the membranes were ruptured. The os was only opening and the child was large, so turning was considered inadvisable. There was no further haemorrhage. A day later labour had not set in and the patient was febrile. Although knowing the danger of rapid delivery in placenta praevia (BRITISH MEDICAL JOURNAL, October 2nd, p. 585), the risk was considered less than what might happen if we waited. Pituitrin 1 c.cm. was injected, and within ninety minutes the child was born. There was no bleeding during the third stage, so presumably there had been no tear of the rapidly dilated cervix. There was no post-partum haemorrhage.

"NIGHTCAPS" FOR THE AGED.

DR. T. D. HARRIES (Aberystwyth) writes: Now that we are in the grip of winter a few remarks concerning "nightcaps" might be of interest to those who have to administer to the care and comfort of the aged. There are many kinds of nightcaps worthy of consideration. The old man's nightcap is usually understood to be a covering for the head during cold winter nights, and so well known is the comfort it affords by the way of procuring sleep that its use is almost universal amongst those who dwell amid the Welsh mountains. The caps are of knitted wool, at which the Welsh women are adepts. Another class of "nightcap" is for internal administration, in which a variety of potions are included, some being of great antiquity, such as "rum punch," which is too well known to require comment, beyond that it is of an agreeable nature and produces a feeling of comfort sufficient to ensure a comfortable night's rest. Other useful "nightcaps" are bovril or milk at blood heat; the milk might under certain conditions be usefully reinforced by the addition of a well whipped egg and a tablespoonful of brandy or rum, which renders it more digestible and palatable. There is another time-honoured "nightcap," familiar to those who can recall the old coaching days, when, on arrival at certain stages, spiced ale, better known as "purl" in those days, was kept in readiness to restore the vitality of the shrivelled-up passengers, who were suffering from cold feet, benumbed hands, cold ears, pinched noses, glued lips, and silent tongues. The transformation following a deep quaff of the elixir was beyond description—a glow of warmth was experienced, proclaimed by a natural flush of the face and restored waggle of tongues, the feeling of comfort and joy, brought forth good-natured liveliness, which continued until the happy passengers were in the arms of Morpheus. Some of the "nightcaps" referred to have for ages passed the experimental stage, and have proved their worth in providing mental and bodily comfort during the closing stages of life, and should not be abandoned to make room for the deadly dopes which have become so fashionable of late years. Of all "nightcaps" the one I advocate for the use of old people who are denied peaceful sleep from lack of vitality is "spiced ale," which is made of strong ale brought to the boil, to which is added sugar, butter, ginger, and nutmeg. As to the therapeutic properties of this cordial, we need not trouble as long as we know that it acts as a harmless prop to the old and decrepit who have gone beyond the age of being revitalized by "vitamin" or rejuvenated by "monkey gland."

FRENCH MEDICAL PROPAGANDA IN THE FAR EAST.

THE General Secretary of the Académie de Médecine of Paris, Professor Charles Achard, recently went on a mission to Japan for the purposes of studying methods for bringing about more intimate intellectual relationships between that country and France. Incidentally he visited also Southern China and Indo-China, and in the course of his journey called upon French professors in the universities of Quebec and Montreal. In a communication to the Académie, Dr. Achard reported that while Japanese doctors are acquainted with English and German medical literature, publish their works in English or German, and even receive visits from German professors, French publications are few, and French medicine consequently little known. There is, however, a Franco-Japanese House in Tokyo, which could be used as liaison agent between the two countries, and could distribute medical publications amongst the libraries. It is hoped to organize visits of Japanese doctors to France, and to send delegates to congresses in Japan. Dr. Achard attended various discussions, and addressed a congress in Tokyo on anti-typhoid vaccination. He concludes his communication to the Académie by stating that the field for French medical propaganda in the extreme East is very large. In Japan, where medicine hardly differs from European medicine, except in method, interpretation, or expression, French propaganda should consist in making better known the scientific publications, the welfare efforts, and the social medicine of France. In China, on the other hand, European medicine is little practised; and France ought to assist in organizing scientific medicine in that country, especially, perhaps, at Canton. Indo-China is French, so that propaganda is hardly needed. But every effort should be made to impress French influence on the population. Native doctors must be trained; medical teaching developed; welfare schemes multiplied; and scientific research endowed. Every nation, says Dr. Achard, which wishes to exercise influence in the world, in the intellectual domain no less than in that of material interests, must without ceasing display its flag. In the Far East France must make the necessary effort, no less than her rivals, to unfurl the national colours.

THE TOOTH-BRUSH: BOON OR BANE?

DR. J. M. MACPHAIL (Middlesbrough) writes: Now that the tooth-brush has lived through more than one generation the question might be asked, Does it do good or harm? On visiting the average house I see lying somewhere about the bathroom a tooth-brush of any age from three to six months, which probably has never been sterilized, and which smells accordingly. Teeth and gums may be infected already, but what of the infection that is forced into the gums with this ragged instrument, which scarifies before it infects? Attention has been directed recently to the finding of septic germs about the teeth and gums, but what of the dead matter and the resulting sapraemia which, after prolonged action, paves the way for septicaemia? Can the ordinary tooth-brush remove the particles from between the teeth, or does it give but an appearance of superficial cleanliness? Some dentists believe that a rubber tooth-brush with vulcanite handle, which can be readily sterilized by boiling, is more efficient and does less injury to the gums. Is the tooth-brush efficient, or should some other means be encouraged to remove dead and decaying matter from between and behind the teeth?

AN ENTERTAINING TRADE JOURNAL.

THE indefatigable Dr. Cabanès, whose books on curiosities in medicine we have noticed from time to time, edits a periodical entitled *La Chronique Médicale*, which is described as a monthly review of historical, literary, and anecdotal medicine. The magazine appears to be financed by a firm of manufacturing chemists, but, modestly, they do not occupy more than a page of letterpress and all the advertisement space with descriptions of their wares, leaving the rest to Dr. Cabanès. An article in a recent issue was written by a collector named Froehner, who died in 1925, and is entitled "Anthropology of Greek vases." He sought to show how all the words used by the Greeks in describing different parts of vases, bottles, and other vessels had reference to various portions of the human body. The fiftieth anniversary of the death of George Sand leads Dr. Cabanès to a series of thoughts and impressions which he calls "Sandiana." George Sand at one time was accustomed to dress in male attire, for purposes of economy it is said. Dr. Cabanès reproduces a caricature of the period, and a glance at the authoress in a *redingote-guérite* makes it easy to agree with the writer who said there was nothing very seductive in her appearance. *La Chronique Médicale* indulges also in ghost stories, and a number of miscellaneous notes, such as that, on account of his vivacity, the Prince de Ligne was forgiven the lice with which his armchair was be-starred!

THE PREPARATION OF ANTIVENIN SERUM.

A GRAPHIC account of the process of collecting the venom of rattlesnakes at the San Antonio station of the Antivenin Institute of America is contributed by Colonel Martin L. Crimmins to the *Journal of the American Medical Association* for November 13th. The rattlesnakes are snared with a leather loop at the end of a whipstock, or the snake is pinned to the ground by a forked stick. The snake is then grasped behind the head, which is held over a Petri dish; with the right thumb and forefinger the venom glands are pressed, causing the venom to be ejected through the fangs into the dish. The venom, which dries rapidly, is pipetted off about every ten minutes and centrifugalized, when four layers can be distinguished, the top being amber, the second opalescent, the third colourless saliva, and the fourth cells. The upper two layers are dried in an incubator at 37° C. for from two to four days, when crystals appear. Two hundred Texas diamond-back rattlesnakes (*Crotalus atrox*) produce about 2 oz. of liquid venom, which yields 1 oz. when crystallized. The venom is sent to the Mulford Biological Laboratories, where twenty horses are immunized in a similar way to that employed in the case of diphtheria and tetanus.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 43, 44, 45, 48, 49, and 50 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at page 46.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page *256*.

Remarks
ON
THE CAUSATION OF THE INCREASED INTRACRANIAL PRESSURE ASSOCIATED WITH TUMOURS WITHIN THE CRANIUM.

(Preliminary Note.)

BY

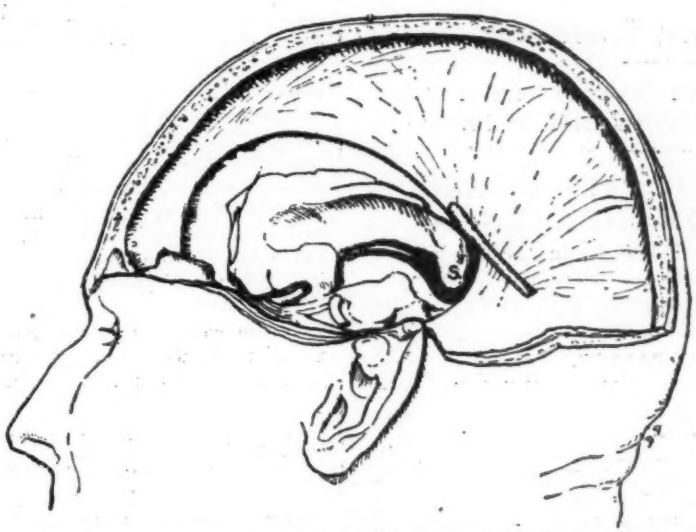
JOHN S. B. STOPFORD, M.D.,

PROFESSOR OF ANATOMY AND DEAN OF THE MEDICAL SCHOOL, UNIVERSITY OF MANCHESTER.

MANY theories have from time to time been suggested to explain the etiology of the increased intracranial pressure which is so frequently associated with tumours within the skull. Nevertheless the matter is still largely shrouded in mystery, although careful observations made upon large series of cases by a number of investigators offer some significant information. Although clinical evidence of raised intracranial pressure as manifested by headache, vomiting, and choked disc is not an absolutely constant accompaniment of tumours within the cranium, it is generally agreed that it occurs at some time in the course of the disease in upwards of 80 per cent. From researches which have been made with regard to the presence or absence of increased intracranial pressure it is clear that the anatomical site of the tumour is of first importance. The rate of growth and size of the tumour also have some influence, but they appear to be of much less significance than the anatomical situation. The histological character of the growth apparently bears no relation to the occurrence or absence of increased intracranial pressure.

Since the site of the tumour is the factor of fundamental importance, it would seem that the causation of the increased pressure might probably be of mechanical origin. The influence of rate of growth and size of the tumour is also compatible with a mechanical origin, since a slow-growing or small tumour would often permit some compensation for the mechanical disturbance, which is less possible in the case of growths rapidly increasing in size. When we examine the situation of tumours which are most frequently associated with manifestations of raised intracranial pressure further light is shed upon the problem. It is well known that tumours of the mid-brain and subtentorial growths practically always cause intracranial tension, whereas tumours of the pons do not as a rule, unless they invade neighbouring regions. Furthermore, on studying records of patients it is found that signs of increased tension are frequently absent in the case of growths of the frontal region, and less frequently absent in the parietal and occipital regions. The constancy of the occurrence of increased intracranial tension with subtentorial growths might at first sight suggest pressure upon the lateral sinuses, leading to interference with the absorption of cerebro-spinal fluid and its accumulation, with resultant rise of pressure within the skull; further reflection, however, makes such a contention untenable, and it is quite unnecessary in this paper to discuss the overwhelming evidence against such a theory.

Reflecting upon the information cited with reference to the situation of the tumour, compression of the great vein of Galen appears, on anatomical and physiological grounds, to be a much more likely cause for the increased pressure.



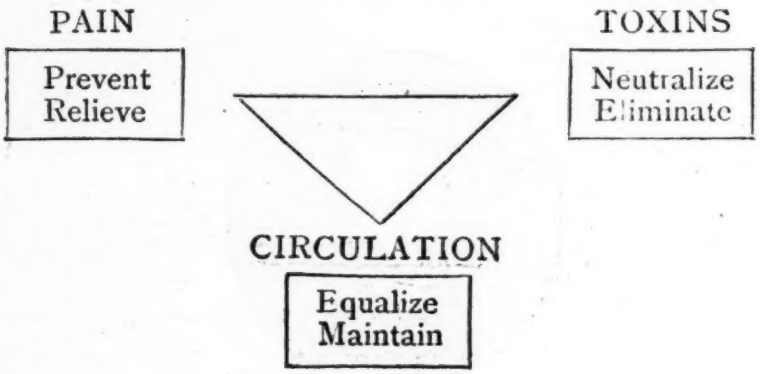
Drawing of dissection described in text, to show the relation of the great vein of Galen to the splenium. Part of the inferior longitudinal and straight sinuses have been incised to display the termination of the vein. S.=splenium.

With this in mind I recently re-investigated the exact course and relations of this vein, and found them strikingly different from those figured in most anatomical textbooks. By the usual anatomical approach the falx cerebri and the tentorium are disturbed before the vein is examined, and its precise relations and direction are consequently grossly modified. Removing a segment of the calvarium by means of a horizontal saw-cut above the level of the tentorium and a sagittal one about half an inch lateral to the superior longitudinal sinus, it is possible to dissect away the cerebral hemisphere and display the origin, full course, and termination of the great vein of Galen as it really exists with the parts in its immediate vicinity intact. Such a dissection is shown in the accompanying drawing, and it will be seen that the vein passes at first backwards and upwards, and then forwards and upwards, to reach the hinder end of the inferior longitudinal sinus, curving round and in contact with the splenium of the corpus callosum. The relation with the splenium is always found to be most intimate, and the vein opens into the sinus as the meningeal tributaries open into the superior longitudinal sinus—that is to say, against the flow of the current in the sinus. Taking this course, which is much more vertical than horizontal, it will at once be noticed that anything which elevates the tentorium is certain to exert tension upon the vein and cause it to be compressed against the splenium. Lateral deflection of the falx cerebri, owing to its attachment to the tentorium, will similarly raise the tentorium and cause the same effect, although not so readily as direct elevation of the tentorium from below. The more rapidly the tension on the vein is applied, the greater must be the risk of compression.

Generally speaking, subtentorial growths and tumours in the parietal and occipital parts of the cerebral hemisphere are obviously more likely to produce this tension, and the suggested consequent compression of the vein, than those occurring in the frontal region, which will only deflect the narrower apical part of the falx cerebri. Reference to the position and form of the falx cerebri and its attachment to the tentorium will show that very considerable lateral deflection would be required in the frontal region, and much less in the parietal and occipital regions, to produce elevation of the tentorium. Mid-brain tumours must be so near to the vein at its origin that direct pressure upon it, or compression of it against the splenium, is exceedingly probable in practically all cases. Tumours of the pons, on the other hand, are not likely to cause any interference with the vein for anatomical reasons, unless they invade neighbouring regions.

The question still remains to be answered as to how compression of the great vein of Galen can cause increased intracranial pressure. Compression of this vein near its origin will produce obstruction to the venous drainage from the choroid plexuses of the lateral and third ventricles, since the veins from these plexuses are tributaries of the two veins of Galen which lie in the velum interpositum and fuse to form the great vein of Galen. Such obstruction must produce an increased capillary pressure in the choroid plexuses, which is likely to lead to an increased production of cerebro-spinal fluid. Fortunately there is convincing experimental evidence to prove the latter statement. Dandy[1] has recently proved that occlusion of the great vein of Galen in dogs, provided it occurs at the origin of the vein and the development of a collateral circulation is thus

THE TRIAD OF TREATMENT IN PNEUMONIA



Authorities assert that the symptomic treatment of lobar pneumonia calls for applied heat for the pain and congestion, to ease cardiac activity, augment superficial circulation, with resultant contraction of deep blood vessels, and to promote neutralization and elimination of toxins.

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the new light it throws on the mechanism of birth injuries, his demonstration of their great frequency, and of the decisive part they play in producing much of infantile mortality that is at present attributed to other causes. The part that is pertinent to our present subject is that which deals with the appearances in children who have survived some years.

In many of these the lesions are gross; in most they are confined to the white matter; but in some they are cortical, and in a few they are indistinguishable from the atrophic and lobular scleroses that have been found in many cases of cerebral diplegia. Significance has been given to the fact that in some cases of diplegia there is no gross lesion, only a fine microscopical change; any gross change that may be present in other cases—atrophic scleroses and the like—is held to be a natural consequence of the primary neuronic degeneration. However this may be, it is certain that diplegia without a gross macroscopical change in the appearance of the brain is extremely rare, and Schwartz's work seems to prove that atrophic sclerosis may result from injury to the brain sustained at birth.

In thinking over this subject I asked myself if injury to the brain during life ever produces effects comparable with Little's disease, and I recalled the remarkable clinical picture presented by men who had sustained a gunshot wound of the vertex with injury to the superior longitudinal sinus, a condition of which I saw many examples during the great war.

These men lay with legs extended, the arms flexed and adducted; the degree of rigidity in the limbs was astonishing; it affected the legs most, diminished upwards, and left the hands free. The upper parts of the motor cortex suffered most because their veins drain into the superior longitudinal sinus; lower parts suffered less because they are drained through other channels. In adults this rigidity passes off rapidly; but it is conceivable that vascular disturbances over the vertex of the kind that Schwartz has described in infants may produce more lasting damage to their young and more vulnerable cortical cells.

I do not wish to stress the point unduly, but for the purpose of promoting discussion I mention the facts—first, that the brain is often injured during birth beneath the presenting part; and secondly, that certain vertical lesions in adults produce a transitory clinical picture of Little's disease in its purest form.

There are two features of ordinary diplegia that I find hard to reconcile with the notion of primary neuronic degeneration as the essential anatomical cause. One is that the disease is hardly ever familial; the other is that in practically all the conditions in which primary neuronic degeneration is generally accepted as the anatomical cause the course of the disease is progressive to death, or up to a point peculiar to the disease or to the affected family, whereas a tendency to improve is highly characteristic of ordinary non-familial diplegia.

Familial cases, indistinguishable clinically from the common isolated cases, have been recorded, but I am impressed rather by their great comparative rarity than by their actual occurrence. In the familial cases, I suspect, pathological examination would reveal changes very different from those usually found in the common non-familial form. In spite of rare exceptions the rule holds that non-familial diplegia from birth tends to improve, whereas post-natal and especially familial diplegia tends to progress.

Whatever the significance of this may be with regard to pathogenesis the distinction is a very important one in practice, and it causes me to express the opinion that non-familial diplegia from birth is entirely distinct from the various forms of non-familial post-natal diplegia. My own feeling is that Little's disease is a clinical syndrome, and that the etiology differs in different cases.

After all, it matters little for practical purposes whether the damage is pre- or intra-natal; the important fact is that diplegia from birth, whatever its cause, tends to improve; in these cases much can be done by appropriate surgical treatment, but the cases must be carefully chosen. Gross mental defect is a contraindication, but where this is moderate, operation, by enabling the child to move about and get into touch with its surroundings, animate and inanimate, may bring about an improvement in the mental state.

I find that there is a tendency to overestimate the severity of the mental impairment in diplegic children. A grotesque appearance and speech which is so dysarthric as to be unintelligible to a stranger may be present in a highly intelligent child. I see a girl from time to time who at first sight would be taken for a hopeless idiot, but she is highly educated, an omnivorous reader, and a leading light in the local Girl Guides. In any competition from which her physical disabilities do not preclude her she is a regular and easy winner.

I remember well a friend of my childhood who was diplegic; his speech was so defective that he was nicknamed Dutchy, but he was the brains of any company in which he found himself, and took the lead naturally in all our games and escapades. I have observed remarkable and, to me, quite unexpected improvement in the mental condition of many of these children, and I should not be inclined to look upon mental defect as a bar to operation unless this were obviously very gross.

Diplegia and epilepsy is an unfavourable combination; my impression is that fits which are symptomatic of organic brain disease are more difficult to control than idiopathic epilepsy; if the fits are not easily controlled by appropriate remedies the surgeon should hesitate before operating on the limbs, as the prognosis for the mental condition is bad. We see epilepsy more frequently as a complication of post-natal infantile hemiplegia—for example, after polioencephalitis—than with diplegia from birth; here again it is not an absolute bar to operation if the fits are infrequent or controllable.

Operation is hardly worth while when involuntary movements are a prominent symptom. Athetoid and choreiform movements at rest are most often seen in hemiplegias and double hemiplegias, whereas in diplegia from birth, if they are present at all, they are more likely to occur on voluntary movement only, but the distinction is not absolute.

Of the familial diplegias amaurotic family idiocy merits special mention, as our knowledge of this disease is increasing rapidly. The classical form is that first recognized from its ocular changes by Waren Tay in 1881, and more fully described later by Sachs. It appears in infants during the first year of life, chiefly, but not entirely, in the Hebrew race, and is characterized by progressive mental impairment, progressive spastic paralysis, and progressive loss of vision, with a cherry-red spot at the macula; it usually ends in death before the age of 2 years. For a time it was thought that the disease existed in this form alone, for the same symptoms, the same course, and histological changes identical with those described by Kingdon and Russell, and eight years later by Schaffer, characterized all the published cases.

In 1903, however, Batten described some cases that differed from the Tay-Sachs form in their later onset, slower course, non-racial incidence, and different ophthalmoscopical appearances. This form is known as the Batten-Mayou type and as the infantile form of Spielmeyer and Vogt. Later still Jansky and Bielschowsky described the late infantile form that begins in the third or fourth year. Finally, a number of cases have been observed at ages beyond childhood—the late forms.

For descriptive purposes it is perhaps expedient to retain the names of these forms, so long as we remember that there is nothing distinctive about them and that transitions occur from one to the other. The infantile Tay-Sachs form is fairly constant in its manifestations, but the post-infantile forms show great variations in their course and symptomatology, although the classical triad—blindness, paralysis, and dementia—characterizes them all. The post-infantile forms are seen most often in Gentiles.

The cherry-red spot at the macula is confined to the infantile form and is present in almost every case. In the post-infantile form the characteristic ophthalmoscopic change is a disturbance of retinal pigment, a kind of retinitis pigmentosa, in the macular region. It is by no means constant, however; in some cases it is associated with pallor of the disc, in others this alone is present, in others vision is unaffected and the fundi are normal. Defective

prevented, causes internal hydrocephalus on account of the overproduction of cerebro-spinal fluid. As would be anticipated, Dandy found that the hydrocephalus developed more slowly than if caused by occlusion of the aqueduct of Sylvius. In addition to this experimental evidence, a few cases have been reported of internal hydrocephalus caused by thrombosis of the great vein of Galen or pressure upon the straight sinus. These suggestions may be criticized, owing to the fact that obvious internal hydrocephalus is not an invariable or essential accompaniment of increased intracranial pressure from tumour. With reference to this it must be remembered that in Dandy's experiments, and in most of the reported cases, the venous obstruction was complete, and the cerebro-spinal fluid was produced in such large quantities that internal hydrocephalus was induced. Less complete obstruction is likely to cause less overproduction of fluid, and slight or negligible dilatation of the ventricular system, but sufficient to produce an increased intracranial pressure.

SUMMARY.

1. It is shown that the great vein of Galen is situated in such a position that it may be compressed against the splenium of the corpus callosum indirectly or directly by tumours occupying sites which are known to give rise most constantly to increased intracranial pressure.

2. Such compression is not so likely in the case of tumours occupying situations which are known to cause less frequently increased intracranial pressure.

3. Experimental and clinical evidence has been submitted by Dandy and others that occlusion of the great vein of Galen leads to internal hydrocephalus from overproduction of cerebro-spinal fluid.

4. It is suggested that moderate compression without complete occlusion of the vein is likely to give rise to increased intracranial pressure, accompanied by slight or negligible dilatation of the ventricles.

5. If the views put forward in this paper are correct, the increased pressure caused by intracranial tumours is due to an excessive production of cerebro-spinal fluid, the fluid being produced in such quantities that absorption cannot keep pace with production, and the intracranial pressure being consequently raised.

REFERENCE.

1 Dandy, W. E.: Experimental Hydrocephalus, *Annals of Surgery*, vol. 70, 1919, pp. 129-142.

British Medical Association.

PROCEEDINGS OF SECTIONS AT THE ANNUAL MEETING, NOTTINGHAM, 1926.

SECTIONS OF ORTHOPAEDICS AND OF DISEASES OF CHILDREN.

E. MUIRHEAD LITTLE, F.R.C.S., in the Chair.

DISCUSSION ON SPASTIC PARALYSIS.

OPENING PAPERS.

I.—WILLIAM J. ADIE, M.D., F.R.C.P.,
Physician to Out-patients, National Hospital, Queen Square, London.

I ASSUME that the organizers of this discussion, when they chose the title of "spastic paralysis," intended that we should accept the word "spastic" in a strict sense and confine our attention to conditions in which stiffness and weakness of the muscles result from disease of the pyramidal system. Rigidity, paralysis, contractures, and deformities from extrapyramidal motor disease and from disease of the lower motor neurone or of the bones and joints, therefore, are outside the limits of our subject.

Further, we are concerned in this Section with spastic paralysis in children; hence the inflammations, degenerations, and compressions that account for most of the cases of spastic paralysis in adults, though many of them occur in children, may well be excluded from the medical part of our discussion, so that we may devote our time to some special morbid processes that produce their effects before or during birth or in early life—the cerebral diplegias, infantile hemiplegias, diffuse cerebral sclerosis, and certain familial diseases.

The commonest and therefore the most important of these is the form of cerebral diplegia generally known as Little's disease. Strictly speaking, Little's disease is a spastic diplegia associated with abnormal birth, characterized by a preponderance of rigidity over paralysis, the legs being most affected, and a tendency to recovery, but it is customary now to apply the name to all cases, whether birth is normal or abnormal.

To the accurate clinical description given by Little, an orthopaedic surgeon, more than eighty years ago, nothing material has been added, but controversy still rages concerning the pathogenesis of his disease. According to many, injury to the brain at birth is the most important etiological factor; according to some, the cause, whatever it is, acts during intrauterine life. In his presidential address delivered before the Neurological Section of the Royal Society of Medicine Dr. James Collier gave a memorable exposition of his personal views on the pathogenesis of cerebral diplegia, and set forth the following conclusions: hereditary and familial influences are extremely rare; maternal ill health during pregnancy has been placed in an important position by many writers, but without justification; abnormalities of birth are common but by no means constant associates of diplegia, and they may be excluded as causal factors; the essential anatomical lesion is a primary degeneration of cerebral neurones from causes at present unknown; the evidence demands the verdict that meningeal haemorrhage should be deleted as a causal factor of any infantile spastic state.

Dr. Collier has shepherded or cudgelled most of us into what he considers to be the way of truth in this matter, but the last word has not been said and the subject is still open for discussion. Those who oppose his view are likely to marshal an array of facts which are not easily set aside; they would strengthen their position materially if they took their stand upon "birth injury," rather than the more particular "meningeal haemorrhage," as the most important etiological factor.

It has been said that such dissimilar factors as premature precipitate birth and prolonged and difficult labour could not produce the same effects. But cerebral lesions are most frequent proportionately in premature infants, while it cannot be denied that injury is likely to occur readily during a protracted labour. It is said, too, with truth, that in many cases of diplegia the labour was normal in every respect. But the brain may have been injured nevertheless, for one of the most important factors in producing birth injuries is one to which little consideration has been given in discussions on this subject, for the good reason that its existence was unknown. I refer to the mechanism described by Schwartz, who has shown that injury frequently occurs in the brain under the presenting part of the head, due to differences in intrauterine and atmospheric pressures.

This factor may be very important when labour is normal in its time of onset and in its duration. The remarkable researches upon the mechanism of birth injuries and the pathological changes produced thereby that are being carried out in Frankfurt by Schwartz and his associates demand the careful attention of obstetricians, pediatrists, and neurologists alike. Many hundreds of brains from children who have died during the first seven months of life have already been examined; in 55 per cent. of them pathological changes due to birth injury were visible to the naked eye; by comparing the appearances in brains from children who lived a few days only with those who died after weeks, months, or years, it has been possible to follow the changes that occur in and around birth injuries and to recognize them at all ages.

Perhaps the most important part of Schwartz's work is

a competent physician, its brain was not examined after death, and the nature of its symptoms is doubtful.

The first obtrusive symptom may be difficulty in walking, mental deterioration, failing vision, or epileptiform attacks. The most constant symptoms are spastic paralysis and mental deterioration; then, in order of frequency, speech defects, defects of vision, tonic and clonic spasms, and various signs of increased intracranial pressure.

The mental disturbance begins as apathy and passes on to complete mindlessness; dysarthria, aphasia, or mutism may be early symptoms. Failing vision was noted in less than half of the infantile cases; usually it is associated with papilloedema and defective pupillary reactions, but in several cases, although vision was grossly defective, the fundi were normal and the pupillary reactions were brisk. This, as Dr. Collier has said, is the sign manual of occipital disease. It occurs when the morbid process begins in the occipital region. It was the combination of *occipital* blindness with spastic paralysis and progressive dementia that enabled Dr. Collier to recognize the first case of Schilder's disease that was diagnosed during life. The same combination with normal fundi has been seen in amaurotic family idiocy, but it is almost pathognomonic of Schilder's disease, and if its incidence is non-familial this diagnosis can be made with considerable confidence.

Fits indistinguishable from idiopathic epilepsy occurred early in some of the cases, and convulsions or spasms of some sort were observed during the illness in about half the cases. In three cases headache and vomiting aroused the suspicion of cerebral tumour.

I do not doubt that as the number of carefully observed cases of this form of diffuse cerebral disease increases, as it is sure to do rapidly, we shall learn to detect Schilder's disease more readily than is possible at present.

The compressions, degenerations, and inflammations that account for most of the cases of spastic paralysis in adults almost all occur in children, but time does not permit me to name them or to refer to their peculiar clinical features.

In some cases of spastic paralysis there is a natural tendency to improvement which may be hastened or increased by operative measures, in some the disease will certainly prove fatal unless cured by surgical measures; in others the outlook is hopeless and surgical treatment is worse than useless.

Sometimes, I fear, unnecessary or unsuitable operations are performed; perhaps these brief remarks on some of the numerous and entirely dissimilar diseases of which spastic paralysis may be a sign will serve to show that close collaboration is necessary between neurologist and surgeon before operative treatment is undertaken for the relief of spastic states.

Finally, with regard to the neurological problems presented by spastic paralysis: recent studies on decerebrate rigidity have added greatly to our knowledge of the physiology of muscle tone, but so far they have given no clear indication for new methods of treatment. Nevertheless the clinician takes a lively interest in experimental work on decerebrate rigidity because, as Dr. Walshe has taught us, the disturbance of tone and the reflex phenomena of spastic paralysis in man are identical with the tonic and phasic reactions described by Sherrington in decerebrate animals.

It is common knowledge that decerebrate rigidity occurs in animals when the brain stem is completely divided at any point between the lower part of the medulla and the upper part of the mid-brain. Transection immediately cephalad to the mid-brain produces little alteration in tone, but if sections are then made more and more caudally, a point is reached when decerebrate rigidity suddenly appears. This has been attributed to damage of various structures by different investigators, but Rademaker has proved conclusively by a series of beautiful experiments that rigidity is absent so long as the red nucleus is intact.

Lesions interfering with other structures at the same level never produce decerebrate rigidity, but one confined to the red nucleus or its efferent fibres in the decussation of Forel produces it constantly. This rigidity is not removed by ablation of the cerebellum, and it occurs in a decerebrate animal from which both labyrinths have been removed (Magnus). It disappears completely when a section is made across the medulla at the level of the calamus scriptorius just caudal to the point of entry of the eighth nerve. It is not yet known which structure in the medulla is responsible for the rigidity. Deiters's nucleus and the olive have been named; perhaps some day we shall see bold surgeons removing the olives for the relief of spasticity.

A comparison of the results obtained by dividing the efferent fibres of the red nucleus in decerebrate animals and in animals with an intact cerebrum suggests that the pyramidal tracts act with the red nucleus to antagonize the medullary centres. In the decerebrate animal, where the pyramidal tracts are already divided, section of Forel's decussation causes extreme rigidity; in an animal with intact pyramidal tracts this lesion produces rigidity, but it is much less intense.

There is one difference between the results of experiments on animals and the results of disease in man which causes difficulty when one attempts to correlate them. In animals whose brain stem has been divided just in front of the mid-brain—that is, in an animal devoid of its thalamus and with both pyramidal tracts divided—the amount and distribution of muscle tone is normal. In man many disorders of muscle tone appear to result from damage to the pyramidal tracts and the basal ganglia; perhaps some of those who take part in this discussion will develop this aspect of a highly complicated subject.

In conclusion I shall merely mention the alleged sympathetic innervation of striated muscle. It may well be that sympathetic nerve fibres reach striped muscle fibres and exert an important trophic influence upon them, but the evidence available at present does not support the notion that the sympathetic plays any part in the regulation of muscle tone.

Gaskell showed long ago that the sympathetic nervous system is not a separate nervous system interchanging fibres with the cerebro-spinal system, but is formed by fibres given off from the cord; Langley made it clear that the autonomic system, of which the sympathetic is a part, though capable to a certain degree of independent action, functions under the control of higher centres. These higher centres, from which, as I believe, all impulses pass that reach the sympathetic, are situated at a level cephalad to the point of election for the section producing decerebrate rigidity; if my assumption is correct, sympathetic impulses to the muscles, if these exist, are cut off by the very section that produces decerebrate rigidity. However this may be, it is certain that complete ablation of the sympathetic system has no effect on decerebrate rigidity, hence division of sympathetic fibres is not likely to influence spasticity. Perhaps surgeons who have performed sympathectomy in spastic states will communicate their results during the discussion.

II.—A. S. BLUNDELL BANKART, M.Ch., F.R.C.S.,

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SPASTIC paralysis is not a disease, but a physiological state—the natural physiological result of the anatomical condition present in any given case. It closely resembles, if it is not identical with, the condition known as decerebrate rigidity, which is produced experimentally by section of the brain above the level of the mid-brain. The result of such a lesion is to remove the inhibitory and controlling influence of the cerebral cortex from the parts of the central nervous system below, which parts then enter into a state of abnormal reflex activity.

Chief of these effects is an exaggeration of the postural reflex which normally maintains the upright position of the body, and whose centres are situated in the mid-brain. This is essentially a continuous act of extension of the lower limbs and spine. Secondly, there is loss of the influence of the upper motor neurone which normally correlates the actions of different muscle groups in the performance of voluntary movements. In other words, there is paralysis of reciprocal innervation, so that the muscles on one side of a joint do not relax when those on the opposite side contract. Thirdly, there is loss or impairment of the power of voluntary movement.

vision with normal fundi and pupillary reactions has been observed: in these cases the lesion causing the visual disturbances must be in the optic radiations or in the occipital lobe.

In one member of a family illustrating the juvenile form that I showed last year before the Children's Section of the Royal Society of Medicine characteristic disturbances of the retinal pigment were detected more than a year before other symptoms appeared; I was thus able to foretell that this unfortunate boy would ultimately succumb to the disease as his elder brothers had done.

The age of onset varies in different families but is remarkably constant in each. In the late infantile form it is usually between the third and fourth years; in the juvenile form it is usually between the sixth and tenth years; in the late forms it has occurred as late as the twenty-sixth year. As a rule the course is shorter the earlier the onset; most infants with the Tay-Sachs form die before the second year of life is completed; in the late infantile cases the duration is usually about three or four years, in the juvenile cases it is usually several years longer, but remarkable exceptions occur. One patient who had been mentally defective from the age of 2 years died in his twenty-third year; another, normal till the age of 10, also died at 23; another child began to fail mentally at the age of 10, had fits from the age of 13, and survived till 26; another, whose symptoms appeared in his twelfth year, died aged 21. Finally, a young woman who had been normal in every respect until her twenty-sixth year lived till she was 38. The diagnosis in all these cases was confirmed by microscopic examination of the brain. The brother of the last mentioned patient showed his first symptoms at the age of 10 years, and was still alive at the age of 38.

Another generalization I should like to make is this: the younger the onset, the more likely it is that all the children in the family will succumb to the disease. I have seen a healthy young Jewish adult three of whose younger brothers died of amaurotic family idiocy, so my rule is not absolute, but it is very nearly true.

The chance of some of the children escaping improves slightly in the late infantile and juvenile forms; in the late forms, where the onset is at 10 or 12, or later, and life is prolonged into the twenties and thirties, most members of the family are normal, and in some instances only one child is affected.

I should like to record here my conviction that *ad hoc* examinations of earlier generations of amaurotic families will reveal evidence of a degenerative tendency in the stock with a frequency that is at present not suspected. Holmes and Greenfield state without comment that an uncle of one of their patients was mentally defective and unable to read; in another family an aunt was blind and demented; in another the father and an aunt, though normal in other respects, had defective vision, which was found to be due to retinitis pigmentosa. It happened that the affected children in this family had normal vision and normal fundi. I suggest that, just as in another heredo-familial disease—dystrophia myotonica—cataract occurs in the otherwise healthy parents and more remote ancestors of children who present the muscular and other manifestations of the disease but may or may not have cataract, so pigmentary degeneration of the retina may be found in the otherwise healthy ancestors of children with amaurotic idiocy who may or may not present retinal signs.

In addition, then, to the cases of amaurotic idiocy with classical symptoms and a uniform course there are many that present atypical features. The cardinal symptom, blindness, may be absent; the fundi may be normal; sometimes no evidence of familial incidence can be obtained; feeble-mindedness far short of idiocy may be the only clinical manifestation of the disease; far from being steadily progressive it may remain stationary for decades. Nothing is constant except the pathognomonic change in the brain.

It is my practice to consider the possibility of amaurotic idiocy being the cause in every case of idiocy, feeble-mindedness, epilepsy, or diplegia, and I look upon an inquiry for visual troubles in the parents and other relations, and an ophthalmoscopic examination of them when possible, as a part of the routine investigation of such cases. I need hardly say that the disc and the macular region must be examined carefully in all children with these diseases.

I suppose we shall retain the name "amaurotic family idiocy" for this disease, but you will agree that it is hardly suitable for cases without blindness, familial incidence, or idiocy. "Progressive cerebro-macular degeneration" is no better, for the macula may be healthy and the disease may remain stationary for many years.

In a special class among the diplegias, with spastic paralysis as a cardinal symptom, I place together the familial forms to which the name of the writer who first described them is usually attached. I shall not attempt to name them all; the clinical features—increasing spastic paralysis, mental deterioration, and sometimes blindness—are common to each form, but the pathological changes vary.

The Merzbacher-Pelizaeus "disease," of which much has been written, has been found in members of one family only, but Merzbacher thinks that some of the earlier cases of diffuse sclerosis described by others were examples of his disease. Krabbe found almost identical changes in two unrelated families and in one apparently isolated case; Scholtz found very much the same changes in another family. Otherwise, although the changes are the same in different members of the same family, each family constitutes a so-called form or type in itself. The onset in these familial cases is almost always definitely post-natal, and the course is almost without exception steadily progressive to death.

In a third class I place the heredo-familial spastic spinal paralyses and the closely related ataxic and non-ataxic forms of Friedreich's disease. Their features are well known and I have nothing new to say about them.

Finally, progressive spastic paralysis, mental deterioration, and sometimes blindness, characterize non-familial cases that are included under the comprehensive title of diffuse sclerosis. It is not yet possible to give a classification of the different pathological conditions that comprise this group, but its limits are being gradually narrowed as one form after another is withdrawn from it.

I have mentioned the familial forms of diffuse sclerosis connected with the names of Krabbe, Merzbacher-Pelizaeus, and Scholtz—there are many others; of the non-familial forms the one that deserves special mention is that described by Schilder in 1912 as encephalitis periaxialis diffusa. Some thirty cases of this disease have been published. You may think that a disease of which so few cases have been published is very rare and hardly worth mentioning; on the contrary, the fact that thirty cases have been recorded since 1912 indicates that it is not very rare, and that it is one which those of us who see many unusual cases will certainly encounter in the course of our routine work.

In less than two years I have seen seven most obvious examples of a certain disease; about forty cases have been published abroad; so far it has not been adequately described in English, but it must be very common. We only recognize the things we know.

On considering all the published cases of Schilder's disease I thought at first that it would be impossible for me to give a useful account of it in a few words, as the age at onset, duration, and symptoms varied greatly in different cases; but on analysing the symptoms in children of 14 years and under I find that between these ages its manifestations are fairly constant.

Somewhat less than half of the cases occurred in children under 14. One child was aged 1 year; in the remainder the average age at onset was just under 8 years. In the child aged 1 year and in another aged 12 the duration of the disease is given as a few days only; in the others it varied from two months to two and a half years, with an average duration of just over one year. In the infantile cases males outnumbered females by three to one. The disease is not familial. In Schilder's second case (called by some Haberfeld and Spieler's case) another child of the same parents is said to have died at the age of 8 years of a similar malady; but this child was not seen by

powerful group of muscles in a state of tonic contraction so intense that it holds the part in a position of deformity, and prevents movement in any other direction. By destroying a sufficient part of this muscle group we abolish the excessive contraction and get rid of the contracture deformity, while leaving sufficient muscular power for all practical purposes. The simplest way of destroying muscle fibres is to cut out their nerve supply, and Stöffel's operation consists in finding the nerve tracts—usually before they leave the main nerve—and excising a sufficient portion of them.

I will not detain you with details of these operations in different regions. Suffice it to say that for adductor contracture of the thigh one resects the two divisions of the obturator nerve; for flexion contracture of the knee one resects the nerve tracts to the long head of the biceps, the semimembranosus, and part or the whole of the semitendinosus; while for the equinus contracture of the foot one resects one-half to two-thirds, more or less, of the nerve tracts to the gastrocnemius and soleus. In each case the relief of the contracture is immediate and permanent, yet sufficient power is retained to adduct the thigh, flex the knee, or raise the heel from the ground, when required. Similarly, the pronation and flexion contracture of the upper extremity may be relieved by destruction of a sufficient part of the nerve tracts to the pronators and flexors.

To Stöffel we owe the development of the "cable theory" of nerves. He demonstrated that in the main nerve trunks of the limbs the various nerve tracts maintain their identity and independence at least for a considerable distance, and that the cross-section of a large nerve is fairly constant in any given situation. So that, given a knowledge of the position of these tracts, we can pick out and isolate from the main nerve trunk the nerve supply of any required muscle group, and we can then destroy as much or as little of it as we please. The ease with which any main nerve trunk can be exposed in a limb, and the fine adjustment and variation that are possible in dealing with the nerve tracts, give to this operation both a simplicity and an adaptability that are, I think, unattainable by any other method of operating.

As examples of variations from what one has come to regard as the typical operations, I would instance cases in which there is severe flexor spasm of the toes, making walking difficult and painful; others in which there is peroneal spasm causing pronounced eversion of the foot; and yet others in which there is persistent internal rotation of the thigh. In each case the contracture is disposed of by resecting a sufficient part of the appropriate nerve tract—the flexor tract to the toes on the deep surface of the internal popliteal nerve, the peroneal tract in the middle of the external popliteal nerve, and the tracts to the internal rotators of the thigh in the superior gluteal nerve.

I need hardly remind you of the consequences of destroying the nerve supply to a muscle. The muscle immediately becomes completely and permanently paralysed; it is pale, flabby, and atrophic; it has no tendency to shorten; on the contrary, it is very easily stretched, and, when stretched, it stays elongated and relaxed. And this is the outstanding feature of Stöffel's operation as compared with operations directly upon muscles and tendons: that the effect is immediate and permanent; there is no tendency to recurrence of the contracture in the paralysed muscle fibres; there is therefore no need to keep these patients in abduction frames or other apparatus; they can be got up almost immediately after the operation; and they require no walking instruments afterwards. In a word, Stöffel's operation abolishes the prolonged mechanical treatment of spastic paralysis, and in particular the use of splints and apparatus.

Some of these statements, which I have made before, have already been criticized, particularly the statement that the results are immediate and permanent. So that I would like to add that I have seen recurrence of deformity after Stöffel's operation—for instance, equinus deformity of the foot after operation on the internal popliteal nerve. But I do not blame Stöffel's operation for this—I blame myself, for it is due either to faulty judgement or to faulty technique. Usually the recurrent deformity is a structural shortening of the muscle, and it means that sufficient care has not been taken to exclude the beginning of structural change before doing Stöffel's operation. Even a slight structural shortening will inevitably increase and entirely spoil the effect of the nerve operation. Other cases of recurrence are due to too little of the nerve tracts having been destroyed. For adductor contracture Stöffel recommended that the anterior division only of the obturator nerve should be removed in mild cases, and both divisions in severe ones. But for many years I have removed both divisions as a routine, for here, as elsewhere, the tendency is to do too little rather than too much. And I prefer Stöffel's operation in the thigh to the route through the abdominal wall, because it is a minor operation which divides no muscles and is obviously less disturbing to the patient.

With regard to the end-results, it must be remembered that spasticity is but one of the disabilities of cerebral paralysis. Even after the removal of their contractures the severer cases never walk quite naturally, and they are apt to be awkward and ungainly. Yet, to take a child who cannot even stand upright, and to put him on his feet and get him walking somehow, is at least a result worth having; while in less severe cases there is often a very striking improvement in stability and locomotion. Fortunately, with the exception of idiots, every child instinctively tries to use his legs, so that the only after-treatment required is practice and encouragement, which in most cases can quite well be given at home.

In the case of the upper extremity the conditions are different. A patient with one sound arm and one disabled one will use the sound arm for everything that he can do with it, and there is hardly anything in the ordinary daily routine of life that cannot be done quite well with one arm. So that in hemiplegics at least there is no natural incentive to use the affected arm after operation, and we depend much more upon the patient's intelligence and co-operation in order to obtain a useful result. Still, some of these patients do show a very considerable improvement as regards function, and the cosmetic result alone is sometimes worth having, for the characteristic pronation-flexion contracture is an unsightly deformity, and the appearance of the limb is often much improved by the relief of these contractures.

In conclusion, I would submit that Stöffel's operation is the best method of treatment which has yet been devised for the relief of spastic contracture.

The actual operation in each region is quite a minor operation and easy of performance.

It admits of a degree of precision and adjustment to the needs of individual cases such as cannot be obtained in any other way.

Its results are immediate and permanent.

The very nature of the resulting intentional paralysis makes recurrence of the contracture impossible.

Therefore, prolonged after-treatment and the use of splints or other apparatus are unnecessary.

GENERAL DISCUSSION.

Dr. J. BEATTIE (London) said that he had come to demonstrate some cinematographic records of experiments performed on seagulls and goats by the late Professor John Irvine Hunter and Dr. Norman Royle of Sydney. In the seagull it was easy to cut the sympathetic connexions of the wing with the spinal cord without interfering in any way with the somatic nerves, afferent or efferent. After this operation had been performed the bird appeared to be normal at first sight, but if the wings were carefully examined it would be seen that the wing which had been deprived of its sympathetic connexions with the spinal cord was slightly lower than the wing on the unoperated side. When thrown into the air this bird seemed to fly in a perfectly normal manner, except that it tended to fly in a left-handed spiral. After flying for about a hundred yards it came to earth with the affected wing in a flaccid condition. This wing was exhausted and the muscles were undoubtedly in a state of complete fatigue. After allowing time for the effects of fatigue to

This condition is due in the great majority of cases to a permanent defect of the upper motor neurone. It is therefore essentially an incurable condition, and the most that can be expected from surgical treatment is relief from some of its most obvious mechanical or functional disabilities. Briefly, it may be said that anything which interrupts the cortico-spinal or pyramidal tract in any part of its course will give rise to spastic paralysis corresponding in extent and distribution to the part of the tract that is destroyed. The manifold conditions which may cause such a lesion concern the orthopaedic surgeon only in so far as they determine the extent and distribution of the paralysis, its progress, if any, and the complications which may accompany it.

The pyramidal tract may be involved in a congenital defect of development of the brain or spinal cord; it may be injured by direct violence or by haemorrhage, either on the surface of the brain (meningeal haemorrhage of infants) or in the substance of the brain (cerebral haemorrhage of adults), or it may be damaged by inflammatory processes (encephalitis, polio-encephalitis, myelitis) either before or after birth.

The cases with which we have to deal are chiefly, though not exclusively, the cerebral palsies of children—diplegias, hemiplegias, paraplegias, and, less often, monoplegias. By the time such cases come for surgical treatment the primary lesion is almost invariably permanent and stationary, and the spasticity is the terminal physiological state.

Cases of progressive paralysis, both syphilitic and non-syphilitic, occur, but I think they are recognizable by ordinary clinical methods, so that they do not often come for surgical treatment. I confess to having performed routine operations on cases of spastic paralysis for many years without taking any special precautions to exclude syphilis, and I do not remember ever having been caught operating unwittingly upon a progressive case. Occasionally one has operated deliberately upon progressive cases in adults in whom the progress of the disease appeared to be so slow as to be negligible.

In a large proportion of cases of cerebral paralysis there is some degree of mental deficiency. It need hardly be said that idiots are unsuitable for operative treatment. But mental impairment of less degree is no contraindication to treatment. Practically any spastic child can be set upon his feet and made to walk somehow, provided only that he has sufficient intelligence to try to use his legs, and it is generally agreed that the mental state of such children may be materially improved by the relief of their mechanical disabilities. Involuntary movements—athetosis, variable spasm, and associated movements—when well marked, are a contraindication to the ordinary methods of treating spastic contractures.

The treatment of spastic paralysis is operative. It is true that considerable improvement may sometimes be effected in spastic individuals by systematic training or re-education of movements. But, apart from this, non-operative treatment is useless, and I have never yet seen any permanent benefit result from massage, manipulations, or electrical stimulation. Moreover, in the majority of cases the place of re-education is after operation and not before it.

Spastic paralysis commonly gives rise to certain contractures of the limbs, and it is to the relief of these contractures that surgical treatment is almost entirely directed. The typical contractures of the lower extremity are plantar flexion of the foot (spastic equinus), flexion of the knee, and adduction of the thigh; while in the upper extremity pronation of the forearm and flexion of the wrist are most characteristic.

Spastic contracture is a tonic reflex contraction of the muscles. It disappears during deep anaesthesia and when the reflex arc is interrupted in any part of its course. This physiological contracture may persist for a long time without any permanent change occurring in the structure of the muscles. But eventually an anatomical or structural shortening is added to the physiological contracture, and the deformity becomes fixed. When structural shortening exists it must be treated by direct attack upon the shortened muscles or their tendons. But when we are dealing with pure physiological contracture we have a choice of methods.

It is hardly necessary now to discuss Foerster's operation or posterior root section, since it has been universally abandoned as a method of treating spastic paralysis. It is, however, necessary to say something about the operation of sympathetic ramisectomy which was recently introduced by Hunter and Royle, and has now been given a fair trial. This operation is based upon the hypothesis that the functions of movement and posture are performed by entirely different sets of muscle fibres, and that the movement fibres are supplied by the ordinary spinal nerves, and the postural fibres by the sympathetic. Spastic paralysis being a state of exaggerated postural activity, it was thought that destruction of the grey rami of the sympathetic would cure or greatly diminish the spasticity of the corresponding muscles.

It may be said at once that the claims put forward for this operation have not been substantiated. While movement and postural activity are undoubtedly different physiological processes, they are nevertheless intimately associated with one another, and the weight of evidence is against there being an anatomical differentiation of these two functions in higher animals. As to the view that the sympathetic is specially concerned with the postural activity of skeletal muscle, the histological evidence is negative and disputed; the conclusions drawn by Hunter and Royle from experiments on animals have been severely criticized by neurologists; but what perhaps concerns us most is the fact that in the hands of others the operation of sympathetic ramisectomy has not given results at all approaching those claimed by Royle.

I have done this operation ten times. In about half the cases there was no appreciable effect either upon the muscular tone or upon the vascular condition of the limb. In the other half the operation was followed by vaso-dilatation of the limb and a definite but slight diminution of the muscular tone, comparable to what one would expect from the accompanying vaso-dilatation. In no case have I been able to persuade myself that it was of real benefit to the patient. This experience seems to be similar to that of nearly all others who have tried this operation in this country and in America, and similar results also were obtained in two cases specially selected from a large number of cases and operated upon by Royle in Boston in October, 1924. The operation of sympathetic ramisectomy, therefore, is not likely to survive long as a method of treating spastic paralysis.

For many years orthopaedic surgeons have treated spastic contractures locally by operations upon the contracted muscles or their nerves. I would emphasize the point that whether one attacks the muscles or the nerves, the principle of the operation is the same—namely, to diminish the effective action of the preponderating group of muscles. One can diminish the effective action of a muscle either by lengthening it, so that its effective range of action is less, or by destroying part of it, so that its strength of contraction is less. Good results may be obtained by either method. But I think that the operations on the peripheral nerves—known as Stöffel's operations—have some advantages over those on muscles and tendons, and I will tell you briefly what I think they are.

The correction of the typical deformities of spastic paralysis by muscle and tendon operations entails a long course of treatment, the details of which are, of course, well known to you. Briefly, in a case of cerebral diplegia, the adductors are divided and the thighs widely separated, the hamstrings are divided and the knees kept straight on splints, and the tendo Achillis is lengthened by a plastic operation. Even after excision of portions of the adductors and hamstrings the tendency to recurrence of the contractures is so great that it is necessary to keep the limbs for a considerable time in some form of apparatus with the thighs fully abducted and the knees extended. Finally, in order to prevent relapse, many surgeons have found it necessary to put these cases into walking instruments for a long time after the correction of their deformities.

Now the principle of Stöffel's operations on the peripheral nerves is this. In spastic contracture we have a

the case of muscles with direct tendinous insertion, such as the tendo Achillis, biceps, and ulnar and radial flexors, he thought a more accurate and satisfactory result was obtained either by their division or elongation. In the case of spasmodic deformity of the wrist and hand he had had good results from tendon transplantation in selected cases, but each case required very careful observation as to the degree of muscle control present. A period of splintage and re-education was often an essential preliminary to operation in these cases. As a rule, unless the patient developed voluntary control of the flexors of the fingers and thumb, operations to correct the position or control of the wrist, and the extensors of the fingers and thumb, were not likely to be helpful. The question of simply dividing the wrist flexors, or transplanting them, would depend largely on the voluntary control of these muscles. If they remained in uncontrolled tonic spasm they were better divided, the position of dorsiflexion of the wrist in this case being maintained by passing the tendons of the radial and ulnar extensors through the forearm bones, so that they might act as ligaments to maintain dorsiflexion of the wrist. In other cases where voluntary control of the wrist flexors was present and the extensors were weak the flexors of the wrist might be transplanted with advantage.

Mr. H. A. T. FAIRBANK (London) said that in the cases which came to the surgeon it had been stated that there was an exaggeration of the postural reflex which normally maintained the upright position of the body and paralysis of reciprocal innervation. Did these explain the development of the deformities? Admitting that the position of the legs was generally one of extension, why was flexion of the knees, and not uncommonly also of the hips, a feature of the cases, when the hamstrings were not the seat of postural tone? Mr. Fairbank agreed with Stöffel that any spastic deformity could be produced if the limb was held in the requisite position sufficiently long. All the muscles were affected more or less, but the stronger groups, or those acting at a mechanical advantage or helped by gravity, gained the day and produced the deformity. If these stronger muscles had their tendons cut and after-treatment was injudicious, the opposing muscles became just as spastic and deformity-producing as the original group. Gravity was important in producing equinus; the ulnar deviation of the hand was also due to gravity. The exact extent of the lesion played a part in determining the direction of deformity; how otherwise could an explanation be found of internal rotation occurring in some and not in others? The common adduction deformity was due to the mechanical advantage which the adductors possessed over the abductors. Involuntary movements, when well marked, were a contraindication to operation, but in the milder cases this was certainly not invariably so. Cessation of a particular temporary spasm by operation might materially aid the function of a limb. Massage was useless, but as regards systematic training there arose the question of the age at which operation was advisable, about which nothing had been said. Patients were seen showing signs of walking soon after the age of 2, for instance, but these were best left till at least 3 before operation. In the meantime training in walking could be carried on, and after this delay it was easier to determine exactly what deformities required operative treatment. Why did some cases develop anatomical contractures early, while in others this complication was surprisingly late?

As to the methods of treatment, the speaker agreed that two only were worthy of consideration—namely, division or lengthening of tendons, and Stöffel's operation. He thought each deformity must be considered by itself. While Stöffel's operation was best for adductor spasm, the open lengthening of the tendo Achillis was the best for equinus. For the knee flexion in younger children he chose Stöffel's method; in the older children the Stöffel operation with tenotomy. He preferred the extraperitoneal route, as introduced by Mr. Tyrrell Gray, for exsection of the obturators. It was no more severe an operation than tackling the divisions of this nerve in the thigh, and had the advantage of being further removed from the perineum. For internal rotation he preferred to cut the superior gluteal and its branches above the trochanter rather than further back. For equinus he was strongly inclined to open lengthening of the tendo Achillis, after an experience of Stöffel's operation on the internal popliteal in over sixty instances, in a large number of which the tendon operation had to be resorted to later. He agreed with Mr. Bankart in blaming the operator, but even so, experience had convinced him that the tendon operation was the better, the more certain and lasting in its results, and therefore the easier. The tendo Achillis should be united after division so that the tendon was pulled on just before the foot came up to a right angle rather than at a right angle. If the Stöffel operation was in the least insufficiently performed a deformity could develop later. To avoid this it must be necessary to destroy more nerve fibres, and then came the dangerous possibility of destroying just too much. He had seen patients operated upon by the Stöffel method at 3 or so without any contracture, and though he had been entirely satisfied with the results for a year or two, yet the patients had developed equinus again later. He preferred to deal with the muscular branches as well as the continuation of these upwards rather than the bundles in the main nerves, when using the Stöffel method. As to the length of nerve it was necessary to exsect to prevent regeneration, particularly when only a portion of a trunk was being dealt with, he always cut out at least an inch, and often much more, in the case of the obturator nerve; yet in two cases, one bilateral, making three nerves in all, he had seen the adductors regain their power after several months. In the bilateral case he operated a second time, exposing the nerves in the thigh and finding them and the muscles healthy and responding to electrical stimulation. There was no sign of an accessory obturator nerve. Since there was nothing on the lateral wall of the pelvis which could be mistaken for the obturator nerve, apart from the fact that unmistakable contraction of the adductors occurred when the nerve was seized and cut, he could not believe that he had failed to exsect the nerves, and he was forced to the conclusion that he did not exsect a sufficient length of them. In another case he saw recovery of the anterior parts of the glutei after exsection of the superior gluteal nerve, but in this he admitted that the length of nerve exsected was much more likely to be small. As to splints, there were cases where these were necessary for a time. In the case of the foot, he thought a rectangular tin shoe should always be used for at least a year after operation, and daily passive dorsiflexion to the full extent be practised for an indefinite period. This was necessary because gravity favoured a return of the deformity, which was not the case with the other common spastic deformities. He believed that Tubby's operation for pronation was founded on a misconception of the movements of the radius during supination; the results were not good. He preferred the Stöffel operation on the branches of the median, with simple division of the pronator radii teres, if this was contracted. Speaking generally, the results of treatment of a spastic arm were most disappointing, except as regards pronator spasm.

Mr. H. TYRRELL GRAY (London) considered that injury at birth was undoubtedly responsible for a large proportion of cases of cerebral diplegia; but there remained a considerable number in which no such cause could be traced. One of the worst cases in the experience of the speaker was shown to be due to an extensive congenital defect of the cerebrum on both sides. If it were borne in mind that so many congenital deformities, such as wryneck, congenital talipes, hare-lip, and cleft palate, were associated with defects in the central nervous system, it was only reasonable to allow that a certain proportion of cases of cerebral diplegia originated in the same manner, independently of injury at birth. The speaker thought that the tendency to improvement did not negative such a view; but this feature might, in some instances, be due to compensation by unaffected parts. Of this power the human body afforded numerous examples. In support of this view the case of hare-lip and cleft palate was quoted. Here defective means of producing certain sounds were compensated by developing the powers of mimicry of normal speech. The parrot was quoted as a notable example of

pass off the experiment could be repeated and the same effects produced. It was therefore idle to pretend that the sympathetic system was devoid of influence on muscular activity. In another record a goat was shown deprived of the lumbar portion of the left sympathetic cord. After decerebration rigidity developed in the four limbs, but the left hind limb soon tired and became flaccid. This was a definite and constant result of this operation, and it showed that removal of the sympathetic influence did produce a definite effect on the limb muscles. The third record showed the effect of the removal of the bird's corpus striatum in producing a spasticity of all the limbs analogous in many respects to Parkinsonism in man after encephalitis lethargica. Dr. Adie, in his opening statement, while admitting that sympathetic nerve fibres might reach striped muscle fibres and might exert an important trophic influence on them, had said that the evidence at present available did not support the notion that the sympathetic played any part in the regulation of muscle tone. He had also stated that the higher centres from which the impulses passed to reach the sympathetic were situated at the level above the point of election for the section that produced decerebrate rigidity. Dr. Adie considered it certain that complete ablation of the sympathetic system had no effect upon decerebrate rigidity. The records shown seemed to suggest that the denial of any influence of the sympathetic on muscle tone required reconsideration. Dr. Adie had made the further claim that the centres controlling the sympathetic system were high up in the nervous system and must necessarily be cut when the operation for effecting decerebrate rigidity was performed. Here again the facts had been definitely established by two independent series of investigations. In the first place, Professor Hunter had been able to demonstrate that the maintenance of tone was not wholly dependent on Deiters's nucleus, which many years ago Dr. Thiele had proved to be concerned in the causation of decerebrate rigidity. Professor Hunter had been able to demonstrate experimentally in the goat that another centre was present which it was necessary to eliminate before complete flaccidity could be induced after cutting off Deiters's nucleus. This centre was in the formatio reticularis a short distance away from Deiters's nucleus in the lower part of the pons. Without any knowledge of Professor Hunter's work, Drs. Bernis and Spiegel in 1925, using the cat and the dog for their experiments, had arrived at precisely the same conclusions. They affirmed that, although the vestibular nuclei played an important part, they were not the only centres for static innervation in the rhombencephalon. Unilateral destruction of the vestibular nucleus and its associated cell groups did not cause a complete loss of tone in the decerebrate animal. Alongside the vestibular nucleus there was a large-celled nucleus in the formatio reticularis which played a part as a centre for static innervation. Fibres descended from it in the antero-lateral column of the spinal cord.

The influence of the cerebellum in the regulation of tone (which they had stated could be proved by the stimulation of the anterior lobe) expressed itself in a diminution of the tone of the extremities, and did not act only through the superior cerebellar peduncle. A second efferent system flowed out of the cerebellum to the oblongata and could be demonstrated in the restiform body; in all probability it passed through the tractus fastigio-bulbaris. In addition to the cells of origin of the pyramidal tract, not only the frontal but also the temporal cortex played important parts as places of origin for tonus-regulating systems. In quadrupeds like the carnivora the influence of this system was very slight. In face of these very definite conclusions it was difficult to discover any cogency in Dr. Adie's second point.

In attempting to apply to the human subject the results made on mammals other than primates, the utmost caution was necessary, because the nature of the factors regulating tone in man and his nearest relatives differed from those of members of other mammalian orders. This fact had been emphasized by Magnus and his colleagues, and was asserted once more by Bernis and Spiegel. A somewhat analogous, although by no means identical, cephalization occurred in birds. It must be remembered that their corpus striatum represented not only the homologue of the mammalian corpus striatum, but also of the neopallium. Excision of the corpus striatum exerted a very definite influence upon muscle tone, to which Professor Hunter had called attention in the lectures published in the BRITISH MEDICAL JOURNAL in January, 1925. The cinematographic records had shown the effect of the extirpation of the corpus striatum in the bird. The effects were in many respects similar to the post-encephalitic Parkinsonism found in man.

Mr. S. W. DAW (Leeds) considered Dr. Adie's classification of the causes of spastic paralysis to be very complete; as surgeons they should be grateful to him for emphasizing the existence of the various progressive types which were unsuitable for operation. At the same time Mr. Daw agreed with Mr. Bankart that such cases were rarely presented for surgical treatment; when seen, there were usually definite danger signals. Mr. Bankart many years ago had called attention to the value of Stöffel's operation in spastic paralysis, and Mr. Daw was convinced of the great superiority of operations on nerves to those on tendons in suitable cases. It was well known how tedious was the prolonged fixation of the lower limbs in the position of correction; the results of nerve operations were claimed to be immediate and complete. Moreover, the process of muscle education was much simplified and could be begun in a week or two. In cases where there was commencing or pronounced contracture of muscle the methods of nerve section and muscle lengthening should be combined. The speaker emphasized the value of the method of lengthening the soleus muscle after division of its aponeurosis as an alternative to lengthening the tendo Achillis. The procedure could be carried out without making a breach in the continuity of the muscle-tendon unit. Turning to a consideration of the upper limbs, where the deformity was usually unilateral as part of a hemiplegia, he did not think that Stöffel's operation made the same logical appeal. In this case it seemed reasonable to make, if possible, a redistribution rather than a reduction of power. The flexors and pronators practically always predominated and the power of the extensors was reduced. Generally speaking, Mr. Daw had found it satisfactory in suitable cases to perform an operation very much as described by Sir Robert Jones for irrecoverable posterior interosseous nerve injury—namely, to divide the flexors of the wrist and insert their tendons into those of the extensors of the thumb and fingers. At the same operation the pronator radii teres was divided and inserted into the extensor tendons of the wrist. The least that could be expected was a greatly improved cosmetic effect, but there was no doubt that function of the hand might also be decidedly bettered. Even in the presence of athetosis of not too severe a kind this operation was worth consideration.

Mr. NAUGHTON DUNN (Birmingham) defined three factors in spastic paralysis: (1) the mentality of the child, (2) the degree of spasticity of the muscles, and (3) the voluntary control which might or might not be present. These would vary in each individual case. It was agreed that the principal means of helping these children was by re-education in the use of the limbs, and by some operation to diminish the spasticity which interfered with function. In the case of the child whose mentality was severely impaired no operation or re-education was likely to be helpful apart from any procedure which would alter the position of the limbs and so facilitate nursing. In other cases where the child could understand the mother or the remedial gymnast, re-education of control of the limbs was often most helpful, and should be continued until the child itself began to make some effort to use the limbs for the purpose for which they were intended. An operation to reduce the spasticity of certain groups of muscles might then be most helpful. The type of operation, whether lengthening the muscles or diminishing their nerve supply, did not seem to be of great importance. The speaker's usual practice was to operate on the nerve supply of fleshy muscles, such as the obturators, the pronator radii teres, and the gluteus maximus, simply because it was easier. In

this were very considerable, but in the infant it was quite simple if the intelligent co-operation of the mother and nurse could be obtained, and the rapidity with which voluntary movements developed in the free paretic arm was most remarkable. In children in whom a high degree of spasm had developed he had certainly seen Stöffel's operation yield the best results, because this could be followed by the simple re-educative measures mentioned, instead of by immobilization.

Dr. W. F. MENZIES (Cheddleton), referring to upper neurone defects, said that such terms as contraction and relaxation, flexion and extension, agonists and antagonists, voluntary and automatic, should be regarded as of comparative value only. Nerve stimuli arose from the energy of neurones which had only one action—namely, discharge, sudden and complete, on the "all or none" principle; then there followed a latent period and slow recovery. These neurones discharged only in response to an afferent stimulus, exteroceptive, enteroceptive, or proprioceptive. They discharged like a continuous and unending machine-gun bombardment from conception to dissolution, countless millions of them, but there must be a lower mechanism somewhere which marshalled them into orderly volleys, passing along the nerves at various rates, usually about fifty a second, for both twitch and tonus were in fact tetanic. Only a few millions out of the countless myriads discharged at once, and these formed patterns of synaptic resistance. If an impulse was strong more neurones were used, and the paths of resistance determined whether a discharge should eventuate in flexion or extension or reciprocal movement or partial relaxation—which was plastic tonus—or what not. A great reflex reserve battery—the olivo-cerebello-pontine—was ready to reinforce certain habitual postures, such as reflex standing in man, seen at its highest intensity in decerebrate rigidity. The only phenomenon which produced a really widespread discharge was the epileptic fit, which resulted in severe neuronic exhaustion—coma; yet it scarcely affected such ancient mechanisms as those in the medulla.

The patterns of synaptic resistance in the cerebral cortex had been worked out by the Pavlov school, but these paths were fairly modern, and concerned mostly the infragranular layers in the higher vertebrates. They were not, of course, so recent as those which represented the cultural development of man, those essentially supragranular paths which were termed "mind," but they were infinitely more modern than the patterns followed in the medulla, that portion of the central nervous system which had remained comparatively stable since the epoch of the segmental invertebrate. Roughly speaking, there were five physiological levels of movement and posture: supragranular, where the more voluntary or directed movements were initiated; the infragranular, most used in the semi-automatic patterns of everyday life; the thalamo-striatal, where automatic ancestral movements, conscious and unconscious, were worked out; the spinal, given over to defence reflexes of a massive type; and the brain stem area.

In aments there were all degrees of cortical underdevelopment. If the supragranular layers alone were affected the children could walk and play and learn certain automatic processes, but they could learn to speak only when supragranular involvement was fairly slight, for speech was a very involved system of applied symbolism. If the infragranular layers were to any great extent defective the children could not be taught personal cleanliness; many of them could never walk. In the normal child the Betz axons, which arborized widely round the small granular cells of the cord by means of their very numerous collaterals, were not fully myelinated at birth. Standing was impossible, but the basal and spinal automatic patterns were perfect, and there was no rigidity. In many aments myelination was late, and owing to supragranular defect the desire, or libido, for directed movements did not exist. These patients could be taught to walk and grasp by educational methods. If ultimate myelinization remained incomplete, through partial agenesis of infragranular layers, various deformities arose, lower mechanisms being imperfectly controlled. It was a curious fact that when a start was made in teaching a perfectly plastic-limbed child to stand, spasticity commenced to appear years earlier than in others who had been left alone. Thus deformities were originated, not because certain muscles were stronger than others, but because certain patterns of movement were less under the control of higher levels. In a general sense the more cortical and striatal the control, the more the spastic postures tended towards extension, whereas in advanced cases of paralysed aments all the limbs were flexed and rigid. This rigidity was indicative of spinal sclerosis. The gradual deterioration was largely regulated by phylogenic antiquity, and it was interesting to observe the simulacra of ancestral postures—fragments of the standing mechanism, as in talipes equinus, which originated when the race came down from trees and emerged from the forests; climbing mechanisms of an earlier date, as in the scissors gait or talipes varus, when caudal extremities were used to grasp boughs; flexor attitudes, when early vertebrates grovelled on the ground. But always the hand had differentiated least, and flexor rigidity prevailed.

After some years of endeavour with ordinary idiots, Dr. Menzies began to think that something might be done for the paralysed and those with spastic deformities; Mr. Mitchell Smith was now treating such cases by the various appropriate methods. It was hoped to get them progressively younger as time went on, so that violent methods might not be necessary. The first task was to combine hand, ear, and eye—seeing objects, grasping them, trying to pull at them. They had little bells and bright-coloured objects dangling within hand reach, and rings by which the child was encouraged to pull himself up. Then they got him on to his feet, holding on by a bar, and eventually encouraged him to bear weight on the legs, and so, aided by the nurse, to walk. If tendon transplantation was required the surgeon must be careful to use muscles the ancestral habit of which was the same as the movement aimed at—not, for example, to attach a muscle whose habit was flexion to a group of extensors. The most useful movement in the hand was the grip, in the shoulder adduction-extension, in the lower limb extension at hip and knee and a right-angled foot. The child learnt to substitute healthy neurones for those missing. It was wonderful to watch how muscle re-education improved the whole mental outlook, but the trouble was to stimulate the desire to try, for the instinct which helped so greatly in dealing with normal children was lacking in the ament.

Why did effort tend to produce earlier spasticity? The evidence concerning the existence of a fronto-pontine tract—by which Dr. Menzies presumed intermedio-precentro-pontine was meant—was contradictory, but the presence of a cortico-striatal connexion seemed probable in lower vertebrates. It was not necessary to presume either of these in man. Tone was a component of all reflex systems, and when older patterns were imperfectly controlled from higher levels they naturally assumed their inherited biological modes of action, even in the isolated cord. With regard to the sympathetic supply to skeletal muscle, it was realized how predominant was the influence of the afferent sympathetic in determining the feeling-tone arising in plain muscle. Could they deny the same emotional value to it in the case of striped? They had an example in normal life when "fidgets" were relieved by voluntary movement. Might not the affected muscles of the ramisectioned gull or goat lose their "will to endeavour" by the cutting of the efferent grey rami? This was a matter with which consciousness (the cortex) had little to do. The dilatation of arterioles brought about by injury to the efferent sympathetic was competent to produce the final fibrous rigidity. An instance of what he conceived to be the influence of the sympathetic fibres in striped muscle occurred in the case of an idiot boy with choreiform movements, who could not stand, but showed no hypertonus. In the hope that the movements might diminish if he could learn to stand and walk, both hips and both knees were placed in plaster in extension. He went downhill so fast that he nearly died, but recovered in a few weeks after release. They were now experimenting with one joint at a time, but these cases were at best decidedly unfavourable.

Mr. A. ROCYN JONES (London) said that one striking feature about the cases considered suitable for operation

such close mimicry. If such views were correct the degree to which the desire and ability to walk could be inculcated indicated the extent to which surgery could be helpful, aiming only at removing the mechanical disabilities. Though it was true that the power to walk was an aid to mental development, the main indication for interference was the inclination to walk. Following an operation such as the removal of mechanical disability, education was of paramount importance, and was the keynote of a good result. Of the different types of operation advocated, tenotomy and exsection of muscles were practically extinct, and, though Foerster's operation had long been abandoned, the speaker, from an experience of six cases, could not help regretting that an operation which had given such satisfactory initial results had been followed by relapse in every instance. Stöffel's operation, alone or with tendon slide, was the method of choice. The value varied in different regions. For adductor spasm resection of the obturator nerves was the best procedure. He still adhered to the abdominal (extraperitoneal) route, which he had practised for the last seventeen years. For flexion at the knee he performed Stöffel's operation with, in some cases, lengthening of tendons also. He was inclined to agree with Mr. Fairbank that, for equinus, tendon lengthening was usually necessary, whether Stöffel's operation was performed on the internal popliteal nerve or not; and that the tendon operation alone was frequently the most satisfactory procedure. But whatever views were held as to surgical details, the one essential was patient post-operative education.

Dr. M. R. WALSHE (London) said that since Dr. Beattie was again raising the fallen standard of sympathetic ramisection as a scientifically based procedure it was necessary to be clear about the ascertained facts, anatomical and physiological, upon which this operation was based. Dr. Beattie had retired from the original position taken by Hunter and Royle, and had, as he understood, allowed that in the human subject the operation was without result; inferring from this that the nervous processes underlying regulation of muscle tone in primates must be different from those obtaining in the lower mammals. All the physiological and clinical evidence available, without exception, indicated that the regulation of tone and of posture was essentially the same in man as in the lower animals in question. Dr. Beattie's difficulty in having to allow the futility of sympathetic ramisection as an operative procedure to overcome spasticity in man was not to be escaped by this entirely speculative proposition. Returning to the evidence brought forward in support of the view that muscle tone was a function of a special element in the striated muscle fibre and was controlled by the sympathetic nervous system, it seemed a reasonable conclusion that the histological evidence was incomplete and inconclusive, and that the existence of a general sympathetic motor innervation of striated muscle was still an open question. As to the experimental evidence, however, the question was not an open one. Not only was it not proved that there were two distinct components of muscle tone, but it was possible to go further and say that Hunter and Royle's experiments on goats and birds seemed to indicate that there were no such separable components and that sympathetic innervation was not in question. Even if the condition pictured in the cinematograph photographs of the goat shown by Dr. Beattie could be regarded as a constant result of uncomplicated sympathetic ramisection in this animal, it did not justify the theoretical conclusions drawn therefrom by Hunter and Royle and provided no evidence of the existence of a "contractile" component of tone; it seemed, indeed, to exclude such a possibility. In respect of the cinematographs of birds, an even more conclusive objection to accepting Hunter's interpretations was that similar, more extensive, and more carefully controlled experiments had been performed over twenty years ago by Trendelenburg without impairing either wing posture or the power of flight. In the absence of anatomical controls it was not possible to say what had so disabled Hunter and Royle's birds, but there was no reason to suppose that posterior root section was adequate to do so. In short, on every count the evidence advanced to prove that muscle tone was controlled, either wholly or in part, by the sympathetic system was defective.

Dr. E. W. N. HOBHOUSE (London) dealt with the common and non-progressive forms of spastic palsies—hemiplegia and diplegia—with special reference to their treatment in infancy and early childhood. He thought that Dr. Adie had made out a good case for the view that many spastic diplegias were due to birth trauma. The analogy drawn between cerebral diplegias and lesions of the superior longitudinal sinus was certainly very suggestive. Two types were probably included under the name of "Little's disease" which might have different pathogenesis. There was a type which was really a quadriplegia, and certainly corresponded very closely with the superior longitudinal sinus lesions, except that it was fairly common to find flexor contracture of the hand in them. There was also a type with a paraplegic distribution, in which the spasm was not maximal in the distal part of the limb, but was particularly marked in the adductors. Dr. Adie remarked that a primary neuronic degeneration was usually progressive, but it might be that the process here was an agenesis rather than a true degeneration.

As to the treatment of these cases Dr. Hobhouse believed that the problem was quite different from that of adult spastic palsies, and that if the cases came to notice in infancy or early childhood, it was possible to prevent, in many of them, the spastic states which required operative measures. Putting on one side the children with real mental impairment, frequent fits, or any form of hyperkinesis, he thought that there was a wide field of non-operative treatment for the others, and that the results were good in nearly all the hemiplegias and a large number of the diplegias. Mr. Bankart said that the condition was essentially incurable; it certainly was so as far as the affected neurones were concerned, but in the infant, as regarded function, he was not convinced. The infant's brain seemed to be a very plastic organ, capable of developing a large number of new reactions. Personally he was open to the idea of the occurrence of vicarious action of other parts of the cortex, though he recognized that this was quite an unestablished hypothesis, at any rate in the higher animals. But he did believe that in any child in which new reflexes could be conditioned new voluntary movements could be developed, and there seemed to be no reason why, if this could be done, new inhibitory impulses should not also be brought into action, with consequent relief of spasm. In practice, at any rate, he had noticed that if active movements could be re-established from an early age, a condition of severe spasm seldom developed, and no contractures occurred. This might be partly owing to some adjustment of the length of the growing tendons taking place. Mr. Bankart said that he had seen no good effects of massage, manipulation, or electricity. Dr. Hobhouse agreed with him about the first two, but would go much further in the third. He believed that the faradization of spastic muscles was an absolutely irrational proceeding which was the principal cause of most of the severe spasms and contractures in these children. It had often been condemned by specialists in electrotherapy, and he had never heard a medical man defend it, but the fact remained that the relatives clamoured for it and usually obtained it. He rarely met with a severe case in a patient of over 4 years of age in which it had not been used; on the other hand, he rarely saw a high degree of spasm developing in a child who had not received it.

Dr. Hobhouse's two main principles in treating an early case were to keep the child from electricity and to re-educate active movement. In a diplegia the great object was to get the child using the legs as soon as possible. He had found that a wheeled frame with adjustable supports under the axilla was of great value in getting the child to learn to walk, and that later on such contrivances as horse-tricycles and kiddie-cars were very useful. But the most surprising results had been in the hemiplegic arm. For this there was only one line of treatment that he had found of any use—namely, to tie up the sound one. In dealing with an adult hemiplegic—particularly with the type of adult most liable to hemiplegia—the difficulties in doing

Presidential Addresses.

TREATMENT BY DRUGS:

A DIP IN A GENERAL PRACTITIONER'S TOOL-KIT.

DELIVERED BEFORE THE BIRMINGHAM BRANCH OF THE BRITISH MEDICAL ASSOCIATION

BY

H. GUY DAIN, M.B.LOND.,

PRESIDENT OF THE BRANCH.

THE choice of the subject for the presidential address to a Branch of the British Medical Association has in its time, I feel sure, been the cause of much searchings of mind or heart, whichever we prefer to consider the real seat of anxieties and the like. For the specialist in some subject or subjects it is possibly less difficult; but when a man has been in general—very general— practice for many years he has been compelled to familiarize himself with numberless questions and subjects, and at the same time prevented from becoming expert enough at any one to find material for a presidential address. I have found it the more difficult because on this occasion I did not want to drag in my particular "King Charles's head" by addressing you on anything to do with National Health Insurance, or, indeed, any other medico-political subject.

There is, however, one question very much in evidence at the moment. I refer to the tremendous consumption of drugs and their consequent unexpectedly great cost, and it has impressed itself upon me that perhaps something useful might be said in consideration of the question of treatment by the use of drugs.

Treatment of Disease by Drugs.

To begin with it seems to be often assumed, or at any rate inferred, whenever the subject is dealt with in the press, that drugs in the treatment of diseases are in the main unnecessary and useless, and that when a doctor gives his patient medicine to drink, or a prescription to get it with, he is simply pandering to his patient's desire to get his cure that way, when he really does not want any medicine at all, but only requires advice. This is "the fetish of the bottle." I do not in the least agree that this is true as a generalization, though I am fully aware of cases in which it is true; and it cannot be denied that it is much easier and quicker to send off a patient with a prescription, which is all he thinks he wants, than to deal with him more faithfully with advice and instructions as well.

Again, there are among us those whose knowledge of drugs and their uses is, to say the least, elementary and limited to a very short list of common remedies—magnesium sulphate, sodium bicarbonate, rhubarb powder, opium, and perhaps sodium salicylate. These doctors have not taken much interest in drug treatment, and have not increased their repertoire by the useful methods of trial and error, and experience. They tend to assume that treatment by medicines is largely a process of faith healing, and they are encouraged and comforted in this belief by the fact, thoroughly appreciated by us all, that the patient is cured by natural processes in himself, and that the cure is not accomplished by the doctor or his medicine. On the other hand, if one has been interested in trying out remedies, the occasions become very numerous when the patient's troubles can be greatly diminished and the course of his disease favourably modified by appropriate remedies, and I propose to relate here some of my own experiences. In these I do not claim to have any explanation, scientific or otherwise, for the actions or effects observed, but I claim the justification of experience.

In our beginnings and before we qualify we have to learn of drugs and their uses, and we have to know and be examined on the contents of that wonderful publication the *British Pharmacopoeia* (the revision and reproduction of which is under consideration now), full of remedies of greater or less potency for all sorts of conditions—many, I am convinced, of very small potency indeed, though widely prescribed. Shall we take, for example, that popular bitter tonic gentian? The value of this is well illustrated by a story of the late Dr. E. Rickards, whose wisdom was well known to many of you. It was observed by one of his students that he frequently ordered an ammonia and gentian mixture, and in search of knowledge the student asked in what circumstances this medicine was prescribed. Dr. Rickards's reply was that he gave that mixture when he did not know what was the matter, when there was nothing the matter, when it did not matter. Other drugs there are of great and well recognized potency, but I have no intention to dwell on the uses of such as are known to be specific in the treatment of particular diseases—for example, quinine in malaria, mercury, iodide, and arsenic in syphilis, emetine in amoebic dysentery, salicylates in acute rheumatism, or opium in pain of different kinds.

Diminishing Use of Opium.

Perhaps the first observation I would make is the steadily diminishing use I find for opium. No! this is not the result of the Dangerous Drugs Act. So many kinds of pain are better relieved by other drugs, and even in the pain of incurable malignant disease, when we are in the end driven to it, I find that the morphine-relieved patient becomes so miserable and mentally altered, and requires so constantly increased a dose that I always experiment with combinations of other pain-relievers for as long as possible, in what I believe are the best interests of both the patient and his friends.

While speaking of cancer I am reminded that a man whose wife had been found to have inoperable carcinoma of the cervix uteri once came to me with an old copy of the *Lancet*, in which a doctor recommended trial of a formula which contained magnesium carbonate 5 grains, potassium citrate 5 grains, alum sulphate 2 grains, tincture of opium 2 minims, in cases of malignant disease, and asked if it might be tried for his wife. I of course consented, to find to my surprise that in a few days the pain was relieved and the haemorrhage and discharges steadily diminished, and for two years while she took the medicine her symptoms disappeared. She could not be persuaded to take it longer as she was satisfied she was cured. After leaving it off for a few months her symptoms returned and the medicine was this time powerless to stay the course of the disease. I have tried the formula since on many occasions, sometimes with apparently helpful results, but only in one other case, and that a pelvic growth, with anything like so surprising an effect.

Catarrhs: Aspirin.

Of the many and varied conditions with which the general practitioner has to deal I suppose it will be agreed that the catarrhs, acute and chronic, of all the various mucous membranes easily outnumber every other complaint, and perhaps there are no other illnesses in which the patient is more grateful for relief. The catarrhs of the respiratory passages are, I suppose, specially and peculiarly prevalent and persistent in our English winter climate. Take the common acute "cold in the nose" with its violent sneezing and profuse dripping—most uncomfortable and very depressing. We all know that it will pass through its various stages and disappear in due course, but the effect, upon many people in the pouring stage, of a few doses of ammonium chloride 10 grains, sodium salicylate 10 grains, chlorodyne 10 minims, is almost magical, but if the formula is taken to pieces and each constituent tried separately the same effect cannot be obtained. And when a catarrh has become bronchial and tends to stick I find that I usually turn to creosote and am rarely disappointed in the result. In combination with potassium iodide this remedy will often benefit cases of chronic bronchitis enormously. I have tried these two drugs in the treatment of acute pneumonia, but without any satisfying results. In the management and treatment of acute pneumonia I suppose that in the course of time we all evolve some general plan, and I am personally persuaded of two things: first, that it is dangerous or even fatal to give saline aperients, especially magnesium sulphate; and second, that expectorants are almost equally undesirable,

was their great mental improvement when once they found themselves able to walk with some confidence. Hospital school teachers stated that not only was the child's walking improved, but that the intelligence was quickened and the brain became more receptive to instruction: the child took a new interest in life. Of the operative procedures Stöffel's was undoubtedly the operation of choice, but there were many cases in which a combined nerve and tendon section produced the best result. For tendo Achillis spasm with contracture section of the branches of the internal popliteal nerve with open elongation of the tendon at the same time produced the best result, but the elongation should only be such as to permit the foot to dorsiflex barely to right angles with the leg, as Mr. Fairbank had mentioned. If the foot passed beyond a right angle at the time of operation there was great danger of a calcaneus deformity subsequently. The adductor spasm seemed to be the most difficult to correct permanently. Both branches of the obturator nerve should be cut, and this could be done without much difficulty on the inner side of the thigh through a four-inch skin incision. The extraperitoneal route seemed hardly necessary. It was often an advantage to remove about an inch of the tendon of the adductor longus at the same time. As for the upper limb, the functional result of operation in infantile hemiplegia had been disappointing. Both tendon transplantation and nerve section had singularly failed in producing a more useful hand. Either method would produce a good cosmetic result; instead of the flexed wrist and clenched fingers the hand appeared more natural after operation, but even so, inco-ordination and lack of precision in finger movements were unaltered.

Mr. A. H. TODD (London) hoped he would not be thought retrogressive in thought and doctrine if he pleaded for the older operation of open tendon-lengthening. It appeared from the discussion that Stöffel's neurectomy was in high favour in the treatment of spastic cases at the present time; but he claimed that the older operation still had a very definite place in their surgical armamentarium, and should certainly be retained. Unless he was much mistaken, it was likely to come into its own again when the present wave of fashion had somewhat subsided. There was no real reason why the Stöffel operation should be more effective than tendon-lengthening, since the object of both operations was the same—namely, the physical weakening of the affected muscles. The whole question turned upon the way in which the operation was performed; lengthening, if efficient, could reduce the physical power of a muscle quite as much as division of its nerve supply. One trouble was that tendons were often not lengthened enough; it must be remembered that these patients were anaesthetized, and that when the effect of the anaesthetic had passed off the muscle and tendon would be very much tighter than they were when their excessive tone was wholly abolished by the effect of the drug. One great advantage of the tendon-lengthening operation was that its effect was absolutely precise, whereas even the most practised exponents of the Stöffel operation had admitted that they had to trust more or less to luck to produce the exact amount of weakening desired. Recently an orthopaedic surgeon of one of the big London hospitals had stated that, while he always performed the Stöffel operation for the adductors and the hamstrings, he always performed open tendon-lengthening upon the tendo Achillis; he naïvely admitted that he did so because he could be quite certain of the effect of the tendon-lengthening. It would surely be logical to operate in a similar manner upon the hamstring tendons, taking care, however, to do enough. Mr. Todd agreed that at the ankle it was desirable to bring the foot to a right angle, and no further, but at the knee the common fault was to lengthen the tendons too little. In the groins the complete excision of three inches or more of the whole adductor mass of muscle was not too much, and gave an excellent effect. As regards the alleged length of after-treatment necessary after the tendon operations, he denied that this was any greater than that required after neurectomy, provided that the operation was efficiently performed. A great deal of the tendency to contracture at the hip and knee was due, not to the muscles and tendons at all, but to the capsules of the joints, and it was these structures, and not the muscles and tendons, that took so long to stretch in the after-treatment. When contracture was considerable a necessary and integral part of the open operation should consist in capsulotomy. In the case of the knee this could be easily performed by means of one long vertical median incision, the main vessels and nerves being identified and swung, first to the right and next to the left, the capsule being completely divided in a transverse direction and then fully stretched. It would be found that after this operation the knee became completely straight, and remained so, without any tendency to recurrence of flexion. In the case of the hip he had tried various incisions, and found that the best, upon the whole, was one running parallel with Poupart's ligament, but about an inch below it; the various muscles in front of the hip-joint were completely divided, and the whole of the anterior aspect of the capsule of the joint also. The limb was then put up in hyperextension for a short time, and no recurrence ensued.

As regards the results of operation, and the after-treatment, it must be remembered that one important factor was the release of the extensor muscles from over-stretching. After operation the extensors tended to improve spontaneously, but everything possible should be done in addition to cultivate their power by means of suitable exercises and massage. The speaker agreed in condemning the use of electricity in spastic cases; parents always clamoured for it, but many children had suffered much from the ignorant misuse of a faradic coil. He regarded electricity in these cases as being not merely useless, but actually prejudicial. As far as the upper limb was concerned, he had never found any good result from the transplantation of the pronator radii teres muscle with a view to converting it into a supinator; he would regard any possible good that might result from that operation as being due to the subtraction of a pronating force, rather than to the addition of a supinating one. He thought that, apart from the use of a digitated cock-up splint for keeping the wrist and fingers extended, surgical treatment could do very little for the upper-limb affections; but very much could be achieved by the constant educational efforts of a keen parent. He was accustomed to tell parents that everything depended upon their own efforts: they must constantly encourage the child to use the affected limb, and not to follow his natural tendency to discard it in favour of the normal limb. Toys which necessitated the simultaneous use of the two hands were invaluable; such as a wheelbarrow, building bricks, and knitting-needles. They ought to consider seriously whether the present stereotyped treatment was right. They were terribly prone, as a profession, to go on carrying out orthodox treatment, simply because it was orthodox, without stopping to think whether the fundamental principles upon which it was based were right or wrong. In a discussion at the Royal Society of Medicine a well known neurologist had said that the whole practice of orthopaedic surgeons in prescribing splints and corrective movements for the purpose of stretching the spastic muscles was wrong; he maintained that by constantly stretching these muscles they were sent into a condition of still greater spasm, and thus much was done to produce the very conditions which were subsequently treated by tenotomy and the like. He suggested that, on the contrary, they ought to give gentle, soothing, stroking movements to these muscles, if possible under running water. The whole question ought to be seriously reconsidered *ab initio* and a decision taken.

Dr. N. B. CAPON (Liverpool) regarded most cases of spastic diplegia as the end-results of intracranial birth trauma, and urged the importance of recognizing this condition in the newborn infant, in order that immediate treatment, especially by lumbar puncture, might be instituted. While adding his tribute to the remarkable results of orthopaedic surgery in helping a damaged body to function more efficiently, he maintained that the prophylaxis of birth trauma was an obstetrical problem, and its essential treatment the duty of the pediatrist.

INSTINCT AND FUNCTIONING IN HEALTH AND DISEASE.*

DELIVERED TO THE ANNUAL MEETING OF THE YORKSHIRE BRANCH

BY

PETER MACDONALD, M.D.,

PRESIDENT OF THE BRANCH.

I HAVE within recent years been profoundly impressed by a new vista which seems to me to have been opened up by the work and writings of a layman—F. Matthias Alexander—with definite bearings upon the science and art of medicine. As Alexander's activities are almost unknown to the profession, although an appreciative review of his book, *Constructive Conscious Control of the Individual*, appeared in the BRITISH MEDICAL JOURNAL of May 24th, 1924, and as I have come to the conclusion that there is a prima-facie case that his work is of first-class importance, and as, if this be so, investigation by the medical profession is imperative, I decided to make use of this occasion to attract the attention of some members of the profession to it, in the hope that some person or persons better qualified than I am to make such investigations may have their interest aroused.

Perhaps I can start best by telling you how Alexander began his own investigations. He is an Australian, and as a young man was a reciter, and had in Australia a great reputation as such, and as a Shakespearian actor. He lost his voice, having contracted what is sometimes called "clergyman's sore throat," presumably a chronic or sub-acute laryngitis. He did what any other man in like circumstances would have done—he consulted a laryngologist. The laryngologist did what any other laryngologist would have done—he sprayed his throat and gave him inhalations, and prescribed rest, etc.—and the throat recovered. Alexander, accordingly, gave another recital, but by the end of it his voice had again failed. He went back to the laryngologist, who was also a friend, who advised another course of the same treatment which had been successful before. Alexander said "No"; the laryngologist asked "Why?"—and I beg you to note the answer. That answer was: "Do you not see? I went into that room with my throat right, and I was able to recite. I came out of it with my throat wrong, and I was unable to recite. What caused the change from right to wrong? Do you not see? It must have been something I did. I will find out what it was that I had been doing wrong. When I have found out that I will cease to do it. When I have ceased to do it I will get my throat right, and I shall need neither your help nor that of anyone else."

Then followed months of patient research. Mainly in front of the looking-glass Alexander made observations of how he used his mechanism—not only how he conducted himself in using his voice, but how he conducted himself generally; how he used that mechanism to sit down on a chair, how he used that mechanism to get up out of a chair, how he used it to walk, how he used it to breathe, how he used it to stand up straight, to bend, to kneel; how, generally, he used himself in the ordinary activities of life.

You will note the use of the looking-glass. Why was this? It was because Alexander had then—although but vaguely—recognized that in man's evolution from the stable environment in which he had passed by far the longest period of his life to the recent rapidly changing environment of what we call civilization, his sensory appreciation (that is to say, the knowledge which he derives from his feelings of what he is doing) is unreliable; so that, for instance, when he thinks he is standing up straight—that is, lengthening his spine—he is often shortening it; when he thinks he is relaxing muscles he is often tensing them; when he thinks he is putting his head forward he is often putting it back—a vague recognition which his researches on himself, and subsequently on others, confirmed.

From these researches certain conclusions were arrived at, the following being the most important:

(1) The first conclusion is that which I have indicated above—namely, that man's sensory appreciation is generally unreliable, particularly as regards knowledge acquired through the muscular sense. If Bain is right in his theory that of all our senses the muscular sense is the most important—that from it, for instance, we derive our ideas of space and time; that, for example, I do not see that the wall at the other end of the room is about twice as far away as the chair near the middle of the room, but that I acquire that knowledge largely by the different amount of muscular energy I have to expend in turning my eyes so that they converge on a spot on the wall from that expended when they converge on a spot on the chair, and from the different amount of similar energy I have to expend to focus each eye so that I can have a clear image of the wall in one case and of the chair in the other; and if it be further true that our sensory appreciation is unreliable, and that knowledge obtained through this sense is likewise unreliable, then civilized man is in a danger zone which will inevitably expose him to serious risks.

(2) The second conclusion is that, generally speaking, in the ordinary activities of life man uses himself badly: that he does not know how to get up to the best advantage from a sitting to a standing position, nor how to stand up when he is standing, nor how to get down to a sitting from a standing position, nor how to continue to sit down when he is down, nor how to walk to the best advantage, still less to run to the best advantage, or to inspire and expire to the best advantage. Now, though the importance of the proper performance of these several functions varies in degree, you will agree that some of these activities, or others cognate to them, are associated with everything man does—whether he is presiding at a meeting such as this, or leading a parliament, or writing a book, or teaching the young, or writing a play, or building a ship, or making a motor car, or ploughing a field, or leading a strike. If Alexander is right, then, generally speaking, throughout his varied activities civilized man fails to function to the best advantage.

(3) Man is a psycho-physical whole, and does not consist of mind and body, or of head and trunk and legs and lungs and heart and liver; he is a unified whole, and if a part seems to be defective the defect is probably one of the whole mechanism, and not of the part. Take, for instance, flat-foot. This is not a defect of the foot alone, the remedy for which is something dealing with the foot alone; it is the result of a defect in the use of the mechanism which controls the carriage of the whole body, and may be got rid of by the means which will rectify this faulty use.

(4) Diseases are inseparable from wrong functioning, and in most of these wrong functioning is primary and disease secondary. Much disease can be prevented by the prevention of wrong functioning, and can be eliminated by the restoration of right functioning.

(5) Man differs from the lower animals in that in their conduct instinct is the important guide, and reason plays a small part; in man's conduct instinct plays a smaller and reason a greater part. Instinct is the result of accumulated racial experiences. Man, in the process of leaving the tree and arriving in this twentieth century in London or York, has taken, say, a million years. For by far the largest part of that time he has been in a state of savagery, or pre-civilization, say, more than 990,000 years; for by far the smallest part he has been in a state of civilization. Instinct, accordingly, is more than 990,000 parts due to the experiences of the savage, less than 10,000 parts due to the experiences of civilization, and only infinitesimally due to the experiences of the civilization of the present day. Instinct, therefore, can be a sound guide to present conduct only if our experiences are similar to those of our ancestors. The experiences of our savage ancestors were acquired in a highly stable environment. Ours is a changing environment, and ever more rapidly changing; hence instinct has become, and is ever more and more becoming, an unsound guide to conduct, and it is ever becoming more and more imperative that for it should be substituted a conscious control.

These are among the more important of Alexander's conclusions, and it is not my purpose to-day to attempt to prove them, or to claim that they are all of equal originality or importance. My object is solely to attract attention so that others may be interested to investigate; but I would like to refer specially to the second and fifth of these conclusions.

The second is that, generally speaking, man uses himself badly in the ordinary activities of life. I would ask you to make some observations on your friends who are over 50 years of age, or still more over 60, and I am prepared

* Revised for publication.

as they promote the flow of mucus and increase the risk of the condition which all must have seen where the patient literally drowns in his own bronchial secretion. Hence I usually prescribe, in the early stages, quinine and calcium chloride, hoping to keep the air passages dry, with the addition of opium when there is much pleuritic pain. And I expect it is fairly common knowledge that paraldehyde is often most effective with the sleepless pneumonia patient, and especially useful when nearing the crisis.

In the course of time and many epidemics every practitioner's procedure in dealing with influenza tends to stereotype itself. Curiously, I find in conversation with others that we all use different drugs, which would go to show that many are equally useful or useless, but after trying out all sorts of remedies I find that I get earlier relief of symptoms by the administration of quinine and aspirin (and here again neither is as effective by itself) than from any other remedies. The late Sir John Simon taught his students thirty years ago to give quinine and phenacetin, but I now prefer aspirin.

Of the many and varied uses of aspirin in pains and febrile conditions I do not propose to speak—they must be well known; but when thinking of its effects I always recall a case that surprised me. That is the worst of having no scientific explanation of a result. Another doctor once handed over to my care a chronic alcoholic of long standing with advanced cirrhosis of the liver and ascites. He was well off, and required to be tapped at regular intervals. On one occasion this patient complained of rheumatic pain in his shoulder-joint, and I ordered him some aspirin, to find that not only was his shoulder relieved but a diuresis commenced which so completely relieved his ascites that he never required to be tapped again, although his habits had not altered. A few doses of aspirin would always take it down if it showed any sign of return. This case of ascites is again associated in my memory with another of entirely different origin. A girl with advanced pulmonary tuberculosis had been away to a sanatorium at St. Leonards and made a surprisingly good recovery, but some time after her return home began to complain of indigestion and abdominal discomfort. Examination showed considerable free fluid in the abdominal cavity, and a diagnosis of tuberculous peritonitis was made. Treatment by rest and mercurial inunction produced no improvement, but administration of salol acted like a charm; the fluid and symptoms disappeared, and the patient has remained in good health for the last fifteen or more years. I can only record the observation without explaining the result.

Intestinal Antiseptics: Nerve Sedatives.

We are told that the intestinal antiseptics, so called, do not act as antiseptics to any appreciable extent, and I agree that it does not seem reasonable that they should, but of the usefulness of many of them in the treatment of intestinal conditions I am perfectly satisfied. Salol in conditions of catarrh or diarrhoea, alike in small children and older people, has come to be one of my sheet-anchors. In cases of gastric catarrh with furred tongue I find that the addition of half a minim of liquid carbolic acid to the ordinary dose of rhubarb and soda mixture often greatly increases its effectiveness. And again, where this is not effective two or three minims of tincture of iodine will often be helpful. In the treatment of mucous colitis, besides the use of salol to which I have referred, many will be aware of a formula advocated with great enthusiasm by Dr. Stacey Wilson: liquid perchloride of iron, liquid perchloride of mercury, and tincture of hyoscyamus, of each 15 minims, given half an hour before food. In some cases I have had excellent results with this, but not all patients respond either to this or to salol, and I have then found great benefit in some very severe and prolonged cases from iron and ammonium citrate 5 grains, liquor hamamelidis 15 minims, tincture of opium 2 minims, the opium being omitted where pain and diarrhoea are not present. Here again I have taken the formula to pieces and used the bits without getting the results. As a matter of fact I am particularly pleased with the use of this prescription, for it has enabled several chronic and miserable invalids to go to work regularly, and if they occasionally relapse, "the bottle" (as the Scots patient has it) sets them on their feet again.

In these days, when it is so usual, or so fashionable, to suffer from "nerves," it often becomes a problem to know how to help nervy, jumpy, badly sleeping individuals. Bromide is capable of quieting them and helping them to sleep, but is liable to depress them further and may make them dependent on its continued administration. It occurred to me, as it doubtless has to many others, to try adding to the bromide some nux vomica or strychnine. Incompatible, some will doubtless say; they will cancel one another out; but experience has shown that potassium bromide 10 grains with liquor strychninae 3 minims is most helpful to the type of patient I have in mind. Bromide by itself depresses them; strychnine by itself is deadly for them—they become more jumpy and strung up at once. But the two given together produce calmness without depression, and help them to get back their sleep.

Another use of bromide I have in mind is in the vomiting of pregnancy, which I was taught as a student to treat with stomach sedatives—soda and bismuth—a method I found most disappointing until bromide was added to it. Bromide, perhaps with liquor sedans (P. D. and Co.) I have always found most effective in the vomiting of pregnancy. Again, all will be familiar with the indigestion of the tired and harassed business man which is immediately relieved by a dose of 10 grains of potassium bromide half an hour before a meal.

To-day the doctor is constantly being offered new remedies that require to be administered hypodermically—a horrible and increasing bugbear to the doctor, though I believe the modern patient expects and likes it. In the treatment of failing heart muscle the administration of adrenaline is recommended, and we are told that it is only effective when given hypodermically; but I have found that some good result is obtained when given by the mouth, and I have two cases of mitral disease with failing heart muscle in whom the benefit of digitalis is definitely improved by the addition of adrenaline, so that they, as well as I, can tell at once when it is omitted.

The National Insurance Drug Bill.

At the beginning of my address I referred to the great size of the National Health Insurance drug bill, and it would not be inappropriate if I made a reference to cost and economy. It is fortunately a fact that many effective remedies are not expensive, and I find that, by using inexpensive drugs when I can, I am able to order the most costly when I want them without exceeding a reasonable average price. To enumerate a few economies: Tincture of iodine, 5 minims in water, is a cheap and effective method of giving iodine in many cases. I so order it in arthritis, adenitis, and thyroid cases, though I do not find it effective as a substitute for potassium iodide in bronchitis or syphilis. Strychnine hydrochloride with chloroform or peppermint is an excellent tonic where indicated, as also is Easton's syrup, 30 minims in water. A very useful prescribing discovery was that aspirin is soluble in a solution of potassium citrate, so that it is possible to give these in a mixture and save a separate dispensing fee for tablets or the necessity of suspending the undissolved aspirin.

In concluding what I have described as a dip in a general practitioner's tool-kit I feel that apology is needed for presenting so fragmentary a discourse as a presidential address, but when I came to put my experiences together I was not able to find any consecutive scheme or plan on which to hang them. At the same time, I do feel that the publication of their experiences of the effects of the drugs in common use by those who see most of their results—the general practitioners—ought to be both interesting and useful.

I should like to make one further remark, and that is that in presenting this one aspect of medical treatment I do not wish it to be thought that I am unmindful of the other and frequently more important factors in treatment, but if there are any here who are satisfied that the effects of drugs are mostly psychological, and that a placebo is generally all that is required, then I can only say that I do not agree, and that such is not my experience.

ated with dropped arches of the foot disappeared, but the dropped arches rose.

In other cases, under the like process, there seemed to be a distinct betterment in cases of angina pectoris, of asthma, of epilepsy, of tremor, of spinal curvature, and of difficulty of walking from locomotor ataxy, and from infantile paralysis. In short, I have seen, during the application of an educative process not directed to cure of disease, the manifestations of disease disappear, so that I personally am convinced that Alexander is at least largely right when he says that disease is the result of wrong functioning. And further, I am beginning to wonder whether there are manifestations of any forms of chronic disease which may not disappear under a process of re-education on these lines, and whether McDonagh may not be right when he states in his great book that all disease is one; and whether the origin of that one disease does not lie in wrong functioning, and its different manifestations depend on different variations in functioning.

In conclusion, let me remind you again of my object in speaking to you. It is not, primarily, to communicate knowledge to you, but to endeavour to arrest the attention of some members of the medical profession to what I consider to be a most important development in connexion with medicine. I am in hope that I have made out a prima-facie case for investigation by competent observers.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

FOETAL TUMOUR OBSTRUCTING DELIVERY.

THE following instance of what I assume to be a very rare complication of labour seems to be of sufficient interest to be placed on record.

A primipara, aged 27, commenced labour on November 20th at 4 p.m., being attended by a midwife. On the evening of November 21st the head of a full-time male child was delivered (left occipito-anterior), and as after many strong pains the body was not delivered, the midwife, at 8.30 p.m., sent for a doctor, and then the latter sent for an anaesthetist.

Examination showed an enormous tumour in the abdomen of the infant, making delivery impossible. Thinking this might be ascitic fluid the finger was introduced into the abdomen, but only a rubber-like mass was felt amongst the intestines. Finding it impossible to deliver the foetus, the doctor sent the case to the Kettering General Hospital. On examination in the lithotomy position his diagnosis was confirmed. After a consultation with my colleagues I decided to do the only possible thing—to deliver the dead foetus by Caesarean section. The head and arms, which were hanging outside the vulva, were amputated, the stumps disinfected, and the body of the child delivered in the usual way through the uterine wall.

The tumour proved to be a very large horseshoe polycystic kidney with two distended ureters attached; it was twice as big as the foetus, and occupied the whole of the abdomen. There was no other kidney, and both suprarenal bodies were found. There were a very large number of cysts varying in size.

On November 28th the patient was making good progress, with normal temperature. Two days later, however, she had a severe haematemesis followed by copious melaena; the haemorrhage continued in spite of treatment and she died on December 3rd.

At the *post-mortem* examination four duodenal ulcers were found, one adherent to the liver, and another, a large one, attached to the pancreas. The haemorrhage which caused her death came from a large vessel in the ulcer adherent to the pancreas.

LESLIE W. DRYLAND,
Honorary Surgeon, Kettering General Hospital.

RESUSCITATION BY INTRACARDIAC INJECTION OF ADRENALINE.

INTRAVENOUS injection of solution of adrenaline chloride in cases of collapse at operation is known to have given satisfactory results. In the case here reported the intracardiac route was used, in a patient apparently moribund, with most dramatic and satisfactory results.

A man, aged 63, was admitted to Greenbank Hospital with strangulated right inguinal hernia. It had been strangulated three years previously and relieved by operation. The patient was in poor condition with bronchial signs and a bad pulse and albuminuria. It was decided to operate under intraspinal stovaine anaesthesia, preceded by a hypodermic injection of morphine and atropine. He was placed in the recumbent position, and before the operation was begun seemed more listless and drowsy than customary, and the pulse was feeble. A hypodermic injection of 1 c.cm. of pituitary extract did not improve matters, nor brandy by the mouth. The pulse was absent at the wrist, he had Cheyne-Stokes breathing, and auscultation of the heart revealed no audible cardiac sounds. The patient seemed to have passed rapidly into a moribund condition.

Intracardiac injection of 10 minims of 1 in 1,000 solution of adrenaline chloride was ordered, the injection being given in the fourth interspace. The effect was magical. Before the needle could be withdrawn the heart was already beating vigorously, and the carotids were pulsating visibly. The patent then remarked that he was quite comfortable and felt no pain.

The operation was rapidly completed, attention being paid chiefly to relief of the strangulation, as the pulse began to fall away again after about twenty minutes. On returning to bed brandy and coffee were given by the rectum, and in a short time the pulse had again become normal. Apart from retention of urine the day following, nothing further of note occurred.

What the sudden collapse with Cheyne-Stokes breathing could have been caused by is not certain. Several possible explanations suggest themselves: (*a*) heart-block with Stokes-Adams syndrome; (*b*) drop in arterial pressure from spinal injection; (*c*) action of morphine on impaired kidney, causing uraemic manifestations; (*d*) gravitation of anaesthetic to medullary centres in spite of the rigid technique observed.

The rapid response to adrenaline suggests some profound vagal inhibition or heart-block with Stokes-Adams syndrome as being the probable explanation.

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TORSION OF THE MESO-APPENDIX ASSOCIATED WITH GANGRENE OF THE APPENDIX.

A COMPLETE twist of the meso-appendix is of some rarity; the following case is reported on this account.

A young adult male was admitted to the Royal Victoria Hospital, Belfast, suffering from abdominal pain. He had had no previous attacks of pain nor any previous illness. The attack came on in the night, two days before admission. It began with heavy crampy pains which wakened him from sleep. The pain was referred to the umbilicus. About noon on the following day he vomited and continued to vomit for some time. In the evening the pain eased somewhat and he slept at intervals through the night. On the following morning, however, the pain was worse; it had settled now in the right iliac fossa, and was so severe that he could not get up. It was constant during the day. At night it prevented him from sleeping, and at this stage affected him when he lifted the right leg. On the following day he was admitted to hospital. He was slightly flushed, the tongue was red and coated, and his breath malodorous. The right lower quadrant of the abdomen did not move freely on respiration. In this position a mass was to be felt, roughly the size of a hen's egg, lying beneath an area extending from McBurney's point to the lateral edge of the right rectus. It seemed to be lying directly beneath the anterior abdominal wall. There was no hyperaesthetic area. On rectal examination tenderness was found towards the right iliac fossa. His pulse was 94 and temperature 100.2° F. There was nothing to suggest that the case was of a type other than the usual one of acute appendicitis with a phlegmon.

At operation the appendix, surrounded by omentum, was found lying close up to the anterior abdominal wall. When the omentum was separated the appendix rotated itself in a clockwise direction through 180 degrees. It was then found that the mesentery of the appendix had still got a half-twist. The appendix itself, about 5 inches in length, was a necrotic mass from its tip to within a quarter of an inch of its base. It had not actually perforated, and considering its state there was less surrounding inflammation than is usually found. A drain of corrugated rubber, extending down to the ileo-caecal angle, was left for forty-eight hours. The wound was healed ten days later.

It is owing to the courtesy of Mr. S. T. Irwin, to whose ward the patient was admitted, that I have been able to publish this report.

The appendix in this case had rotated in an anticlockwise direction through a complete circle. This may have been secondary to inflammation with its resulting distension; but the fact that the omentum held the appendix rotated against its inclination shows that the appendix had become fixed to it when fully rotated. This suggests that the acute inflammation did not begin until the appendix was in the fully rotated position and that the torsion of the meso-appendix was the cause and not the result of the inflammation.

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to wager that you will find that many of them have a waist measurement as large as, or larger than, their chest measurement, and you will find few in whom there is not present a stoop, with the chin thrown forward and head drawn back, with, if you try to move the head, an accompanying rigidity of the muscles of the head and neck, so that you will find difficulty in pushing the head on one side if you want to examine the ear. As I once before said in one of the Sections at an Annual Meeting of the Association, I do not believe that these manifestations are a result of old age; I believe that the misuse of the organism which brings them about constitutes one of the causes of it. Unfortunately, you find them in young people also, and, I think, increasingly so.

The second of the conclusions I wish to refer to is No. 5, and I will give two instances of how change of environment has converted a useful instinct into a harmful one, the second instance throwing some light, in my opinion, on why instinct, derived as it is from racial experience, tends to lessen health and promote disease.

(*a*) There is reason to believe that with primitive man, as is the case with many animals, the stranger was an enemy and was killed. This was generally an entirely reasonable process, and was arrived at from observations of experiences that if you did not kill him he killed you; or, where food supply was short, if he obtained the food you had to go without, and accordingly died. Though as regards persons this instinct has largely died out, and we now recognize that an advantage to one person does not necessarily or usually involve disadvantage to others, traces are left. *Hostis* is a Latin word with two meanings—the one is "stranger" and the other is "enemy"; and there used to be a tradition that there were villages where the normal thing to do to a stranger was to heave half a brick at him. But where the horde psychology comes into play, this instinct still continues, and there are persons who still believe that one nation's advantage means the disadvantage of other nations, and we still have hostile action in various spheres between nation and nation or class and class.

(*b*) My second instance, however, is one with an important relation to the science and art of medicine. I have come to learn from Alexander that health is associated with a satisfactory use of the mechanism which controls the carriage of the body, and that this control should be such that the spinal column is maintained as erect as possible. In other words, the vertebrae should be pulled away from one another rather than pressed together through a co-ordinated use of the mechanism which tends to elongate rather than depress. More particularly the control of the neuromuscular mechanism should be such that the neck portion of the spinal column should be continued up as straight as possible, with the head square on top of it, throughout most of the activities of life. These words "straight" and "square" are used for the moment loosely, and I am aware that they need further definition, or, probably better, demonstration, as I shall indicate later in this paper.

Those of you who know the work of Professor Magnus of Utrecht, and who have read the most important lecture he delivered at Edinburgh on May 19th and 20th on the physiology of posture, in which, for instance, he points out that in his experiments on "attitudinal reflexes" "the whole mechanism of the body acts in such a way that the head leads and the body follows," will see how the conclusion of Alexander as to the importance of the relation between head and neck, neck and trunk, is borne out by laboratory experiments. In fact, Alexander has in his work and in the technique he has devised for re-educating his pupils anticipated some of the results which Magnus and others have arrived at through these laboratory experiments.

If the use of the mechanism concerned with the control of the carriage of the body is thus satisfactory, the tension of the great abdominal muscles will not permit of the pendulous abdomen so often associated with age, with all its liability to visceroptosis and intestinal stasis.

Why is it the case that this right use and satisfactory carriage of the human body is rare? In my opinion it is due to the carrying over of a primitive instinct, which was once sound and helpful enough, into an environment where it has become unsound and harmful. The dominant factor of life in primitive man and the ancestors of primitive man must have been fear, and it is my belief that when man became *Homo sapiens* he dared not stand erect. If he raised himself erect he was liable to be seen over the shrubs or grass in which he stood by sabre-toothed tiger or wood wolf or cave bear, and accordingly eaten. Hence he learnt to crouch and peer with head thrown backwards and down. It was a habit for which there was then a sound reason. But this instinct was carried over to civilization, where, instead of being an advantage, it has become a disadvantage in the sedentary environment of modern life, with resulting flaccid muscles, pendulous belly, and accompanying conditions. This is surmise; but let me remind you of the reason given why a horse, when it gets up, rises on its fore feet and then on the hind, whereas the cow gets up first on the hind feet and then on the fore. The reason given is that in the environment of fear—which is the common ancestral environment of all animals, man included—the horse raised his head up before his body because he lived on grassy plains, and he raised his head above the grass to look over it for enemies before he showed himself fully; whereas the cow lived in the forest and kept its head low to the last so as to look for its enemies below the branches where it could see them best.

It is an accepted scientific opinion that at the present stage of the evolutionary process modern civilized man is in imperfect adjustment to his environment. The importance of Alexander's work lies in his emphasizing the reality of this maladjustment of man's neuromuscular system, and in his having devised a technique for teaching pupils a right, or rather a better, use of themselves.

I cannot tell you much of the technique, for in the first place there is to-day no time, in the second I am not competent to do so, and in the third I am sceptical if it can be described in words. Words give such messages only from one brain to another as can be conveyed through the sense of hearing. Even the written word carries messages through the sense of hearing translated from the sense of sight. Words cannot be used to convey any meaning as to a sensory appreciation. You cannot really describe a colour in words so as to convey any meaning to another person unless he already knows the colour. Part of the technique, however, consists in the inhibition of wrong use. This is seldom easy, at least with adults. You all know how difficult it is to "keep the head down" at golf.

Another part is concerned with the method by which ends are attained. "Ends," says Alexander, "should not be arrived at direct." If the end is held in view successful attainment of the end is unlikely. Success is attained only by attention to the "means whereby" that end can be reached. With correct attention to the "means whereby" success in attaining the end is assured.

Let us again take a golf instance. I presume that there are few of you who have not had advice from a professional to "follow through" in driving a golf ball; and I am certain that no one of you ever met a professional who was able to tell you how to do it. In this, obviously, end-gaining gains no end; it only interferes with the attainment of the end desired.

If Alexander is right, then, the sound use of the mechanism and the elimination of instinct as a guide to that use is of first-class importance to all man's activities, and—what is of interest to us as a body of medical men—in the prevention of disease; and if it is as important as he says it is, his work should be incorporated in the education of our young, if only as a matter of preventive medicine.

Alexander is a teacher pure and simple. He does not profess to treat disease at all. If the manifestations of disease disappear in the process of education, well and good; if not, the education of itself will have been worth while. Manifestations of disease, however, do disappear. Including myself, I know many of his pupils, some of them, like myself, medical men. I investigated some of these cases, and I am talking about what I know. For instance, there was a case of flat-foot. Please note that Alexander was not directly interested in this foot. What he did was to teach the pupil how to use his brain and muscular mechanism in sitting down and getting up, how to comport his head in relation to his neck, his neck in relation to his thorax, his thorax in relation to his breathing, how generally to control the carriage of his body; and, in the process, not only the disabilities associ-

glands with these particular changes, which could be summarized as follows: Autolysis of cells, possibly due to lead, or an associated sepsis might have assisted. These changes could best be found within the first fortnight, and they were far in excess of what would have been expected from simple regressive malignant changes. Their extent depended upon a good blood supply, which was not present to a large degree in the case of a lymphatic gland.

Osteomyelitis.

Mr. R. KENNON read a note on osteomyelitis, and dealt with the acute condition first. Commencing immediately beneath the epiphyseal cartilage, an area sometimes termed the metaphysis, the primary focus was almost without exception within the cancellous bone; it spread in varying degree to the bone marrow, later to the periosteum, and finally invaded the intramuscular planes, subcutaneous tissues, and joints. The characteristic symptom being one-finger tenderness and pain over a bone end, it was aptly termed one-finger rheumatism of bone. The temperature was high and sleep was impossible. Swelling was a late sign, appearing with the tracking of the central abscess; pain and swelling were not synchronous as in rheumatism. Dr. Kennon then described the maximal points of tenderness in the upper and lower limbs, the posterior aspect of the lower end of the tibia above the epiphyseal line being the commonest site in the whole body. In explanation of these points of tenderness he showed pathological specimens illustrating the corresponding lesions, and also quoted various cases. The methods of spread of the subperiosteal abscesses from the various sites in the different bones were described, and also where they tended to point; the size of an acute subperiosteal abscess had no relation to that of the central abscess. The speaker compared this condition with tuberculous osteitis, and cited various authorities on the primary focus of infection. He said that if it was true that the lesion was primarily a bone lesion in the diaphysis, then it would mean that the distribution of acute infection and tuberculous osteomyelitis was the same. Mr. Kennon said that every practitioner ought to know where he would encounter the greatest pain and tenderness in a suspected case of osteomyelitis. Every radiologist should know on which bone surface the central abscess would burst, and arrange for multiple photographs accordingly. The surgeon should know these surfaces and drill them, so imitating Nature's method of bringing relief to bone tension. With regard to after-treatment, these osteomyelitis cases required as much open-air treatment as possible, just as in tuberculous cases.

Arthritis Deformans.

At the meeting of the Liverpool Medical Institution on November 25th Dr. H. S. PEMBERTON read a paper entitled "Arthritis deformans: observations on its etiology and treatment," an extension of a preliminary publication (JOURNAL, July 4th, 1925, p. 13) by Dr. L. S. Ashcroft, Dr. L. Cunningham, Mr. T. P. McMurray, and himself.

Dr. Pemberton dealt first with the difficulties of diagnosis from other forms of arthritis, and went on to outline the scope of their investigations into 64 cases. These cases had been studied from four aspects—clinical, bacteriological, metabolic, and therapeutic—the last being based entirely on conclusions drawn from the first three. On the clinical side he had little to say, beyond drawing attention to the relative infrequency of cardio-vascular changes, and commenting on the change of view which appeared to be taking place in regard to focal sepsis. On the metabolic side investigations into intestinal delay, acid-base ratio, renal and hepatic efficiency, basal metabolism, sulphur excretion, gastric secretion, and glucose tolerance were presented in some detail. Little or no change had been found in the rate of intestinal passage; no evidence of renal inefficiency had been found; the liver efficiency was doubtful as, although there had been no excess of urobilinuria, the blood-levulose curves had indicated abnormality; the sulphur excretion was definitely increased; 65 per cent. of the fractional test meals had shown hypochlorhydria (50 per cent. of these being achlorhydria); and the glucose tolerance was impaired in practically every case. The basal metabolic rate had been found to vary very little. Illustrations were given comparing arthritic blood-glucose curves with those of the normal diabetics, and the subjects of pancreatic disease, the latter being found to resemble most closely the curve in question. Slides were also shown of bone and joint changes in diabetes mellitus. On the therapeutic side the aim had been to make good or counteract the deficiencies which the investigation had shown to exist, such as deficient gastric secretion, diminished glucose tolerance, and increased sulphur loss. This had been done by giving as a routine (1) large quantities of 0.4 per cent. pure hydrochloric acid; (2) at first a carbohydrate-free diet of low calorie value, increased later by the addition of more fats, proteins, and some of the 5 per cent. carbohydrate foods; (3) collosol sulphur; (4) massage first and then exercises. Comment was made upon the difficulties of a "carbohydrate-free" diet taken over a long period. The results were very encouraging in some 60 to 70 per cent. of the cases, and sometimes in as short a period as three weeks; it was felt that this therapy was of distinct value.

Recurring Acute Intussusception.

Mr. C. O. DAVIES, in a note on recurring acute intussusception, first described the case of a male infant, aged 5 months, who was operated on twice in the space of twelve weeks. On the first occasion an ileo-caecal intussusception was reduced, and on the second occasion the invagination was of the ileo-colic variety. From a study of 32 cases reported in the literature the following conclusions were reached: (1) That recurrence of acute intussusceptions in childhood is rare, at the most amounting to somewhat less than 4 per cent. of cases. (2) The usual interval between the recurrences varies from two and a half to ten months; a few cases were met with where the interval was as long as two years. (3) There does not appear to be any necessity for trying to prevent recurrence, nor is there any reliable method of doing so. The importance of warning parents that a recurrence was possible, although not likely, was emphasized, and immediate re-operation urged as the treatment.

ACTION OF LOBELINE.

AT a meeting of the Section of Therapeutics of the Royal Society of Medicine, held on December 14th, with the President, Dr. GEORGE GRAHAM, in the chair, Dr. S. WRIGHT read a communication by himself and Dr. F. R. CURTIS on the action of lobeline.

The authors began by recalling that lobeline was a pure crystalline compound obtained from *Lobelia inflata* (Indian tobacco) with the empirical formula $C_{22}H_{27}O_2N$. Since its isolation lobeline had been coming into clinical use, and they had therefore undertaken a reinvestigation of its pharmacology. Experiments had been carried out, in many cases decerebration having been performed to avoid the complicating factor of anaesthesia. Dr. Wright first described the experimental findings in the case of the heart. The initial effect appeared to be a slowing of the heart, the auricle particularly being affected, and this cardiac inhibition usually caused a fall in blood pressure. If the heart was in an enfeebled state this initial depression might arrest it altogether, but usually there was present a secondary effect, in which the heart rate returned to normal, and might accelerate still further. The effects on the heart appeared to be complex in character, consisting of initial stimulation both of the vagus nucleus in the medulla and the ganglion cells of the vagus in the nodes of the heart. These cells were later paralysed, and in addition lobeline had also a direct poisonous action on the heart muscle. The effect of lobeline on the blood pressure was then described. There was an initial fall, due probably to cardiac inhibition, followed by a marked rise, after which the blood pressure went back to normal, or, if larger doses were used, even below this. Lobeline appeared to act by first stimulating and then paralysing the ganglia along the course of the vasomotor nerves. Coming next to the action of lobeline on the respiratory centre, Dr. Wright described how the drug markedly stimulates this centre, causing a considerable increase in the pulmonary ventilation. The doses required to produce such effects, however, also gave rise to the effects on the circulation already described. It appeared that the drug lowered the threshold of the respiratory centre to carbon dioxide, but it was possible

Reports of Societies.

THE SENSE OF INFERIORITY.

On November 15th Dr. Alfred Adler of Vienna addressed the Royal Medico-Psychological Association on "The feeling of inferiority and its consequences." He said that every human being was continually striving to develop himself in some degree towards a self-satisfying completion, the full achievement of his life purpose. In every situation where the problems of living were being attacked there was to be observed this striving for superiority. A normal man had, in the main, three great problems to solve. First, there was the problem of social relationships, the desire to take some place in the world of men. The neurotic, in whom the degree of failure was usually very marked, must have another goal, and was always trying to escape from this normal aim of social life. The second problem was that of occupation, and the two were not wholly separated. Every occupation was a beginning of trying to be useful. To be useful induced a feeling of confidence and well-being. The third problem of life was sex. To unite with someone of the opposite sex was the normal goal for everybody. If the problem was being evaded there was a lack of self-confidence, a lack of courage, as in the case of neurotic subjects. The lack of courage might arise from an organic burden in childhood. To delicate children the world was a great difficulty, an embarrassing problem; and these burdens were remembered by them. The feeling of personal inferiority, in the case of children burdened with physical defects and deficiencies, was greatly intensified. Even the normal child suffered in a difficult situation, and if he had disturbances of vision or hearing, or some similar disability, he felt that he could not bear it. There were two situations peculiarly inimical to normal development. One of these arose where the child was made to face greater difficulties, in which case there was a greater feeling of inferiority. The other was concerned with the process of "spoiling." Such a child lived in a symbiotic manner, like a parasite, and received everything from others. He could not develop a normal style of life. The goal of children with organic deficiencies or of those who had been spoilt was to overcome the difficulties of life in the most complete fashion. For them there must be no less than the complete command of the situation, and their demands upon others were unlimited. Nervous patients often began as spoilt children. Such children were not capable of independence, of working with others for a common usefulness, and were always torn with conflicts. To a third type, the hated child, who grew up without warmth and love, was often illegitimate, or at any rate unwanted, the world was to a great extent comparable to an enemy country. Children of this type developed what might be termed a defensive attitude; they had no desire to join in with the efforts of others, and they had no wish to be useful in a hostile community. Thus they also were always in a situation of conflict. To accomplish their desire to be first in power and domination they restricted their environment, for they could not hold complete sway in the whole of society. They evaded occupation, and they evaded love; their eccentricities were always signs of evasion. Those signs of the attempt to escape the solution of the three questions of life were not always obvious, and it was rare to meet a man who frankly said, "I do not want to mix with others," or frankly avoided occupation. There were always justifications for evasions. Symptoms could be traced back often to childhood, and the history of the case invariably indicated such antecedent situations as had been considered in the three types of children. The spoilt child clung to the individual who spoilt him. Nervous people always attempted to justify the carrying out of their wishes to command other persons on the grounds of their anxiety. People who had agoraphobia required another person to be with them, and this other person must obey. If the neurotic person had a headache all the family must be silent, must obey, must take care not to irritate. This striving for superiority and for domination by any means developed in childhood. The symptoms could not be treated; they must treat the individual and change his attitude to life. So long as the patient persisted in his morbid attitude one could not get rid of the symptoms.

Dr. Adler cited the case of a young woman, 26 years of age, in good bodily health, who had suffered for about a year with agoraphobia and depression. She dated the onset of her trouble a year previously, but the symptoms really originated in a change of her life situation when she had become a mother for the first time. She was a spoilt person, and aspired to be the centre of attention; the coming of a child of her own made her difficulty greater, and neurotic symptoms commenced. She often became very angry when her husband differed from her. They frequently quarrelled in spite of the love they had for each other. When the child came she felt that the time had come to reinforce her own position. The husband loved the child very much; she became more irritable and very depressed. She aimed at being the centre of attention, developed anxieties, and forced the husband to be with her always—an indication which explained her actions. She could not go on a tram and she could not travel by train, but she could drive in a car, since with a private car the stopping and the route could be controlled. In a sanatorium the patient improved considerably, but when she returned to her home she had a bad relapse. It appeared that in the sanatorium she found a physician whom she regarded as a very charming man; he flattered her and was always attentive to her. When she left she wrote him a letter full of kind thoughts, to which she had no reply, and from that time her symptoms increased. She built up a guilt-complex, concerning which she was very reticent; but it constituted an excellent tool for overcoming the husband. She said, "I could betray my husband, because he has left me, because he does not now flatter me as he used to, and is not so attentive to me." This breaking up of the marriage tie would have been an act of revenge against the partner. Though she was a very beautiful woman, she had lost her self-confidence. Her whole demeanour showed that she feared defeats and rebuffs. There was, in fact, a feeling of great inferiority. She could only dominate her husband through her agoraphobia and by means of her depression. The development of such an attitude to life, said Dr. Adler, could be prevented. The best course was to begin in childhood, to avoid spoiling the child, and not to overlook deficiencies in various organs. The aim should be to make the child independent, to make him free, to give him enough self-confidence and courage to develop his social feelings, to be useful, and not to be terrified by the other sex. If the patient had reached adult age he must be re-educated and given a fresh start. The attitude of the physician must be parental. The patients must be stirred to the depths of their personality; they required honest and frank handling, and no demands should be made upon them; one should simply seek to strengthen their courage, so that later they might feel independent.

[The full text of the lecture will appear in the January issue of the *Journal of Mental Science*.]

ABNORMAL CANCER METASTASES FOLLOWING LEAD TREATMENT.

At the pathological meeting of the Liverpool Medical Institution, held on November 18th, Professor E. E. Glynn read a short note on some remarkable histological changes occurring in the metastases of a case of carcinoma of the breast treated with colloidal lead.

Professor Glynn said that the patient had received two doses of lead, in all 0.175 gram, the last dose being given eleven days before death; there were no symptoms or signs of lead poisoning, and nothing exceptional beyond a terminal temperature and empyema. Metastases were present in the liver, lungs, suprarenals, and one enlarged gland. These metastases showed extraordinary stunting and deformity of the cells, which were depressed and flat; the nuclei were condensed, and did not stain well, the appearance being that of an autolysed sarcoma. There was also fatty infiltration of the liver. In the one enlarged gland, where the great bulk of it showed the same changes, there were also present perfectly healthy cancer cells, some of which were in mitosis. This was the only case noted in Liverpool that showed metastases in other organs and lymphatic

electrode and the tissue to be destroyed. It was effective in the removal of moles and blemishes, and had been applied by American workers to the tonsillar region and in the destruction of haemorrhoids. Another method, that of electro-desiccation, was first employed in Philadelphia. Diathermic current of a low heating capacity was used, not sufficient to coagulate the tissue proteins. The reaction after desiccation of the tissue was very slight, and the cosmetic results were good. It could be used to destroy corneal ulcer, also for papillomata of the vocal cord. Finally, there were two methods of using high-frequency currents for cutting, in which the division of the tissues was effected by a minute electric arc. These procedures were called in Germany *lichtbögen Operationen*. A single needle was used, and when it came in contact with the tissues a little arc appeared, the needle was drawn across the tissue, which was divided with ease, and the capillaries and lymphatics were sealed as they were cut, so that the risk of producing metastasis when coagulating in the neighbourhood of malignant tissue was reduced. The tissues would heal by first intention after cutting. One of the methods was known as Wyeth's operation, used in America, in which a special current of enormously high frequency and sustained oscillation was employed. The other method was one which came to this country from Germany, via Sweden, and had been developed here by Mr. John Anderson of Dundee, in which again a special diathermic current in dividing the tissues produced surface cauterization, but over a rather deeper layer than in Wyeth's method. It was used largely in breast carcinoma. An exhibition was given through the epidiascope of both these methods in operation.

Diathermy in Treatment of New Growths.

Mr. F. J. STEWARD said that his own experience of diathermy was confined to the treatment of new growths, either malignant or pre-cancerous, situated on the surface of the body or within the mouth or pharynx. A comparison between diathermy and the cutting operation in the treatment of such cases would, he believed, establish the superiority of diathermy provided certain conditions of technique and choice of cases were observed. If the coagulation was carried well beyond the limits of the growth in all directions the result in respect to removal of tissue, separation of slough, and absorption was practically the same as after excision. Diathermy was practically a bloodless operation. In dealing with the mouth or fauces the danger from the inspiration of blood or septic material was practically eliminated. The general condition of the patient and his powers of resistance were conserved instead of being drawn upon by loss of blood. Post-operative shock was very slight. Freedom from loss of blood and diminution in the time of the operation no doubt explained the absence of shock in part, but it seemed likely that the trauma of coagulation was less severe than that of cutting. Convalescence was usually rapid and devoid of complications. The patient was comparatively free from pain, both immediately after the operation and during the process of healing. This acted as an inducement to use it as a palliative measure in hopeless cases. Finally, the rapidity of the healing and the character of the resulting cicatrix called for notice. In the operation certain requirements had to be observed. The destruction of the growth and of a considerable amount of healthy tissue surrounding it must be thoroughly and systematically carried out, and in order to accomplish this the growth and its surroundings must be fully exposed to view. A proportion of cases did not admit of satisfactory exposure, and on that account were unsuitable for diathermy. In order to avoid the possibility of missing any portion of the growth it was as well to mark out the limits of the area to be treated with a diathermy knife and then proceed to the systematic destruction of the tissue within the limiting line so drawn. He avoided diathermy when the growth involved bone. He had had only one satisfactory case where bone was involved—a case of large rodent ulcer of the frontal region. The possibilities of diathermy, he said in conclusion, would appear to be limited only by the need for satisfactory exposure of the growth and the general condition of the patient.

General Discussion.

Mr. GWYNNE WILLIAMS confined his remarks to the treatment by diathermy of cases of carcinoma in the mouth, which would be considered fit to be operated upon by the knife, and in which the diathermy knife was used as a substitute for cutting. Had it any advantage over the knife from either the immediate technical aspect or the ultimate condition of the patient? From the operative point of view there was less loss of blood, but vessels had to be tied, and there was a risk of reactionary haemorrhage. After the operation the patient had less local pain, and was generally less upset. If the mouth was kept rigorously cleansed there was no serious risk of secondary haemorrhage, but, on account of the depth of the slough, if sepsis did occur the danger was considerable. His impression was that the scar was softer after excision by diathermy than after the use of the knife. The ultimate result, so far as recurrence was concerned, was not affected, and would only be so theoretically if implantation of the growth on the raw surface at the time of operation was a factor in determining some of the recurrences.

Mr. DOUGLAS HARMER said that the first demonstration of surgical diathermy in this country was given at St. Bartholomew's Hospital by Professor Nagelschmidt, at the invitation of the late Dr. Lewis Jones, in 1910. Treatment of this kind was started at that hospital in the following year. One patient who was treated in 1911 for epithelioma at the corner of the eye remained well for twelve years, and then, on a certain amount of recurrence taking place, was treated with radium needles. She then remained well until a few days ago, when diathermy was again applied. He showed photographs of a number of other cases of fairly long standing, including one of rodent ulcer of the nose, in which the lower part of the nose was removed by the diathermy knife. The wound healed rapidly, a plastic operation was performed, and the patient had remained well and free from recurrence for three years. With regard to growths in the upper jaw, he thought there was no doubt that since diathermy had been employed the number of cures obtained had been almost doubled. The route that he preferred in these cases was through the palate. Such an exposure gave good access to most of the malignant growths in the upper jaw. In that way they were thoroughly burned with diathermy, and afterwards treated with radium, large doses being used for about forty-eight hours, and as a rule good results were obtained.

Mr. H. H. RAYNER spoke of his experience in the diathermic treatment of cancer of the skin and the palliative treatment of cancer of the breast. He believed strongly that the risk of local recurrence was diminished by the use of diathermy. In its use in cancer there were three types of cases in which it was advantageous: (1) in extensive rodent ulcer, in which radium had been used and had failed or in which radium was plainly inapplicable owing to the extent and connexions of the growth; (2) in advanced lupus epithelioma (cases in their early stage could be dealt with by ordinary surgical measures); (3) in that type of epithelioma which was extremely foul and heavily infected, and in which there was a risk of serious sepsis following any ordinary surgical operation. In palliative treatment of cancer of the breast in cases which were beyond question inoperable, he believed that diathermy could be of substantial benefit. Such patients might be enabled to live a fairly active life for one or two years.

Dr. THOMAS MARLIN said that in certain quarters there was a misconception as to the course of the diathermy current. People were accustomed to talk of diathermy as a penetrative current, the heat being generated between the electrodes, and had the idea that there was no diffusion of current. Some even believed that the current could pick out certain tissues and heat them to an unhealthy temperature. The speaker detailed certain experiments in which he had passed the current through meat, eggs, potatoes, and so forth, and showed that the current did spread a little, as distinct from heat diffusion; that at no point between the electrodes was it stronger than just under the small electrode; and that heat was not generated in one kind of tissue more than in another.

that the result might be due in part to constriction of the blood vessels of the medulla. The influence of lobeline was also studied in narcotized animals. In animals under ether anaesthesia pushed until the breathing had become slow and feeble, recovery was definitely more speedy if lobeline was used than in the control animals, allowed to recover unaided. In animals narcotized by morphine, lobeline increased the rate of respiration and led to adequate ventilation. If the respiratory centre was completely paralysed by morphine lobeline was much less effective, possibly because of the low blood pressure. Dr. Wright then reported the effects of lobeline on the bronchi, when slight constriction appeared to occur in some animals, and on other structures, describing how vomiting, micturition, and defaecation had occurred when large doses were employed. In summarizing, he stated that lobeline had been shown to be a powerful respiratory stimulant, but only in doses which produced other effects, and its use in patients with an enfeebled myocardium should be cautious. He suggested that it might be useful in cases of sudden respiratory failure from any cause, and would probably be more effective if combined with some cardiac stimulant. He suggested that a dose of 10 mg. intravenously would be found effective in the human subject, arguing from the dosage used in animal experiments.

Dr. J. H. BURN said that lobeline appeared to have the expected "nicotine" action, and suggested that adrenaline might be combined with it, the only objection being the necessity of giving the adrenaline intravenously. Pituitary would produce a more lasting effect on the blood pressure, or possibly lobeline might be combined with atropine to cut out the depressant effect on the heart.

Dr. PHILIP HAMILL pointed out that the disadvantage of lobeline was that its effects were not lasting.

Sir WILLIAM WILLCOX stated that he had used the drug several times, with beneficial results in one case of new growth in the chest associated with troublesome dyspnoea, and also in one case of persistent hiccup, where every other drug had failed. He pointed out that it had been used in coal-gas and morphine poisoning.

The PRESIDENT inquired about administration of lobeline to patients, and thought that it was of greatest use in cases of respiratory emergency.

Administration of Oxygen.

Dr. R. HILTON then read a paper on a comparison of some methods employed for administering oxygen. He pointed out that the primary aim in giving oxygen was to transfer this gas from the atmosphere to the blood, and accurate measurements of the result of this could only be carried out by arterial puncture. There were, however, two steps in this process—first, the oxygen is transferred from the atmosphere to the alveolar air, and secondly from the alveolar air to the blood. If the first step was successful the latter would probably run a parallel course, and hence his method had been to estimate the percentage of oxygen in the alveolar air in samples taken directly into the Haldane gas analysis apparatus. He dealt first with the traditional glass funnel held 10 cm. away from the face, and showed that in a normal person there was no effect at all on the percentage of oxygen in the alveolar air. If the funnel was held close to the face the results were better, the oxygen in the alveoli being nearly doubled, and with a shaped funnel held very close the results were only slightly better. With a nasal catheter with the end in the nasopharynx the results were even better; but Dr. Hilton remarked that a nasal catheter along which oxygen was passing at the rate of four litres a minute was not pleasant. The best results of all were obtained with breathing pure oxygen from a Douglas bag through a mask fitted with inspiratory and expiratory valves. In this case the oxygen in the alveolar air could be increased to 90 per cent. Dr. Hilton pointed out that many patients would not tolerate a mask and would pull out a nasal catheter, and he had recently been trying a mask which covered the mouth only. This appeared to be better tolerated, and it was possible to get alveolar air containing 50 to 60 per cent. of oxygen in normal persons by this method. He mentioned the great efficiency of a method devised by Gilchrist and Davies for using a double-forked glass tube, placed in each nostril. He then discussed the ideal apparatus, mentioning the questions of cost, attention required, and the comfort of the patient. Although a mask over the whole face was most uncomfortable, the reasons for this were not quite clear. He stated that he had had no experience of the oxygen chamber. In his opinion the method of choice was a mask over the mouth, and he inquired if the oxygen pressure be raised to 60 per cent., was there any clinical advantage in raising it higher. He thought that arterial puncture and estimation of oxygen in the arterial blood was necessary to settle this.

The PRESIDENT thought Dr. Hilton's figures of great value, since oxygen as usually given in the wards was largely wasted. His own experience had been that a full mask was not well tolerated; he inquired if the mouth-mask was better for comfort than the nasal catheter.

Sir WILLIAM WILLCOX confirmed the uselessness of the glass funnel in his experience unless it was pressed over the mouth and nose. He hoped that a pleasant and efficacious method of giving oxygen would be devised.

Dr. P. HAMILL said that it appeared that a nasal catheter along which oxygen flowed at the rate of 1½ to 2 litres a minute doubled the oxygen in the alveolar air. He thought that better results would be obtained if the other nostril was plugged. Patients seemed particularly intolerant of any apparatus with an expiratory valve, and he asked about the use of a tube in the mouth.

Dr. DOROTHY HARE inquired about the nature of the mask used over the mouth.

Dr. HILTON, in reply, stated that the mouth-mask was a modified small anaesthetic mask inverted with its broad end uppermost, and that personally he greatly preferred this to a nasal catheter. He believed that a better effect could always be obtained with a nasal catheter if the other nostril was plugged.

SURGICAL ASPECTS OF DIATHERMY.

A DISCUSSION on the surgical aspects of diathermy took place at a combined meeting of the Sections of Electro-Therapeutics and Surgery of the Royal Society of Medicine on December 17th, when Dr. G. B. BATTEN was in the chair.

Various Techniques.

Dr. E. P. CUMBERBATCH, in opening, said that by the expression "surgical diathermy" European surgeons meant the passing through abnormal tissue of an electrical current of high frequency and of sufficient intensity to coagulate the tissue *in situ*. In the most common method a narrow disc electrode was applied to the tissue to be destroyed, and the completion of the circuit made by a broad plate electrode placed on another part of the body. When the current was started coagulation spread from the edges under the disc to the centre, and gradually extended below the surface. When sparks began to pass there was little or no further increase of coagulation. The coagulation in different layers of the tissue depth was in different degrees. Another method was to insert into the tissue a needle electrode. Coagulation began at the point of the needle and spread up the shaft to the surface, but before there was time for it to get to the surface the tissue in contact with the needle was desiccated. This method was much more under the control of the operator than the first. Coagulation would not spread more than 2 or 3 mm. from the point of the needle. A third method was that of circumvallation, a technique introduced by Howard Kelly of Baltimore. A single needle was used, and was directed from the surface obliquely downwards to a point under the abnormal tissue. Another method of using diathermic current for the treatment of malignant disease was a combined method of coagulation and cutting. In this method a narrow blade electrode was passed into the healthy tissue around the growth, the blade was slowly moved forwards, and the tissue cut. This was a difficult method, and it was very easy to move the blade too fast and get bleeding. Another method was fulguration, properly not diathermy at all, but a destruction of tissue by means of diathermy sparks, which bridged the gap between the point

possible for a patient to have a narrow coronary artery for many years, without showing symptoms, and then suddenly to get a thrombosis.

Serum Treatment of Scarlet Fever.

Dr. J. H. POLLOCK read a paper entitled "Observations upon scarlatina." He dealt with the question of the frequency of *Streptococcus haemolyticus* infection as shown by blood cultures and metastatic abscess formation. He believed that a streptococcus septicaemia was very frequent.

The PRESIDENT remarked on the large numbers of cases in which Dr. Pollock had found streptococcus. He had used anti-scarlatina toxin to some extent at the Richmond Hospital, but it was expensive, and in his cases he could not say that it had had any remarkable effect, and was by no means comparable with the effect of diphtheria antitoxin. It was generally claimed that patients could be discharged from hospital in three weeks after the administration of antitoxin.

Dr. W. CROFTON drew attention to the fact that English investigators had for years persistently maintained that a streptococcus was the cause of scarlet fever, though the Americans got the credit for it.

Dr. W. E. HUTCHINSON said that he had been at Cork Street Hospital for a year while cases of scarlet fever were being treated on the ordinary lines; after that time serum had come in, and patients had been treated with it. He had no doubt whatsoever, from a comparison of the treatments, that anti-scarlatina serum was the best treatment for this disease. He mentioned one patient who on admission had been absolutely comatose; 10 c.cm. of serum was given that night, and 10 c.cm. the next morning, and an uninterrupted recovery followed. He could not be sure whether the giving of serum lessened the complications that arose in cases of scarlet fever.

Dr. R. J. ROWLETTE asked if all the patients treated were cases of true scarlet fever, or of sepsis simulating this condition. It was important to make a distinction between cases of true scarlet fever and cases of acute sepsis with a rash. He asked if the use of vaccines made from the organisms which were separated from the blood had been tried. He thought that probably an autogenous vaccine would be more helpful than serum, and that vaccine and serum together would be more helpful than either alone.

Dr. POLLOCK, in reply, said that they had found at Cork Street Hospital that the giving of serum did not make any difference regarding the length of time of convalescence. As time went on, he thought it possible that scarlet fever would be regarded as a much less separate entity than it had been considered recently, and he also thought that the nomenclature of many of the fevers would be changed in the future.

Haematoporphyrinuria.

Dr. R. H. MICKS and Dr. W. R. FEARON described a case of haematoporphyrinuria. The urine was a deep port-wine colour, and showed no absorption bands. By adding 10 per cent. barium chloride solution drop by drop to boiling urine the pigment was carried down with the precipitate of barium salts, and removed from the precipitate by extraction with glacial acetic acid, or with a 5 per cent. solution of sulphuric acid in 90 per cent. alcohol.

Dr. R. R. LEEPER said that the patient from whom the urine was obtained was a man who had been under his care for some years, and suffered from dementia praecox; he was cyanosed in the extremities, as such cases often were. One night he had retention of urine; the urine was drawn off, and haematoporphyrinuria was found. The patient had had no drug treatment.

Dr. ABRAHAMSON thought that this case was of the acquired variety of haematoporphyrinuria, since the cause was not apparent. He referred to four cases of this condition which he had reported in the *Quarterly Journal of Medicine*, two of which were of the acquired type and two congenital.

Dr. A. R. PARSONS referred to a case of haematoporphyrinuria, a specimen of which he had shown at the Academy in 1906. The patient, a woman aged 23, complained of very severe abdominal pain, constipation, and sleeplessness, for which there was no apparent cause. The urine was generally normal when passed, but later changed colour and became the colour of port wine. The patient had had no drug treatment. She recovered and left hospital, but about a month later she returned, being much worse. She developed symptoms of peripheral neuritis, and died some time later. Alkalis were freely given, but without any benefit.

Chronic Gastric Ulcer.

Dr. E. T. FREEMAN read notes on a case of chronic gastric ulcer, and showed radiograms illustrating its healing. The patient, aged 45, had had abdominal pain for seven years; this was worse in the summer and early autumn, when he was in the habit of eating much fruit. He complained of pain at the ensiform cartilage, especially when standing erect, and could not walk, stand, or sit up without discomfort. There was slight tenderness in the mid-line, no enlargement of the liver, and no tender or palpable gall bladder. He looked slightly jaundiced, and had bradycardia; the teeth were excellent, and there was no obvious infection of the tonsils. A fractional test meal showed hyperchlorhydria, and some leucocytes and blood cells. An *x*-ray examination showed an ulcer on the lesser curvature with a large crater towards the pancreas; there was slight pylorospasm, and duodenal irregularity. The ulcer was of the type for which surgical intervention was usually suggested, and for which gastro-enterostomy would be useless, as the pylorus emptied normally. The patient was put on a rigid Sippy diet—milk and cream every hour, with alkaline powder between, and tincture of belladonna each night. Eggs, ground rice, bread-and-butter, and vegetable purées were gradually added. At the end of three weeks he was allowed fish and was then taking three small meals daily, with milk, cream, and alkalis between. He had now been on an almost normal diet for some months, with alkaline powder and cream mixture. He was not allowed to eat a greater total quantity than twelve ounces at any meal. The patient had been free from symptoms since the second day of treatment; credit was due to him for his complete co-operation. The aphorism had been attributed to Sir J. K. Fowler that no fool was ever cured of pulmonary tuberculosis. Dr. Freeman suggested that the same was true for gastric ulcer.

Dr. R. H. MICKS referred to an article by Einhorn and Crohn of New York, in which were mentioned 101 cases of gastric ulcer treated medically during the last four years. They stated that about 80 per cent. were cured after a year, but that after four years, of the cases that had been treated, only about 50 per cent. had not relapsed. He thought that in the average working-class patient this was the most that could be hoped for.

JAMES MACKENZIE INSTITUTE.

ON November 23rd Professor ADAM PATRICK read a paper on diabetic coma. He referred first to the known facts regarding the chemistry of ketosis, and showed how imperfect carbohydrate utilization might be the result either of deprivation of sugar or of inability to assimilate it. He emphasized the importance of aceto-acetic acid in the body, and said that there was no point in elaborating tests to distinguish this substance from acetone in the urine. Dealing next with the symptomatology of the condition, he laid stress on the early signs of impending coma, especially abdominal pain. He advised treating every symptom which appeared out of the ordinary as the possible commencement of coma. He contrasted the symptoms of coma with those of hypoglycaemia, and showed how in the latter the prominent symptoms were nervousness, mental excitement, tachycardia, and, it may be, diplopia. In regard to treatment, he pointed out the importance of making every effort to prevent the occurrence of coma by attention to the diet laid down, and especially by avoidance of any change which would cause difficulty in accurately adhering to the ordered regimen. In conclusion, Professor Patrick gave a detailed account of methods of treatment of coma once established, up to 200 units of insulin being given in the twenty-four hours, with control by two-hourly examination of specimens of urine. He mentioned the utility of the duodenal tube in facilitating the introduction of large quantities of fluid, as recommended by Poulton.

Mr. GORDON TAYLOR, from an experience of more than 100 cases of operable carcinoma of the mouth treated by diathermy, was convinced that the ultimate results of the treatment of carcinoma of the tongue by this method were better than those following the old method with the scissors or the knife. The only objection was the increased risk which these patients seemed to run of getting bronchopneumonia. Of those who got over the operation 50 per cent. seemed to have a chance of freedom from the disease for at least six years. Secondary haemorrhage was said to be a risk incurred in connexion with diathermy. In 84 cases of carcinoma of the tongue he had had only two secondary haemorrhages, one of which was very slight and easily controlled; the other was from the lingual artery, and in that case also the patient got well. In inoperable malignant growths of the mouth there was no question that diathermy was a very useful means of helping these unfortunate individuals. He had also used diathermy in the treatment of inoperable carcinoma of the breast. For the last ten months he had had experience of the light-arc operation practised by Mr. Anderson in Dundee—a method which, he thought, came originally from Sweden. It seemed to him that this operation held out considerable advantages over the ordinary knife method.

Mr. JOHN EVERIDGE said that it was common knowledge that the diathermic cautery presented enormous advantages in papillomata of the bladder. Recurrence seemed to take place with a good deal of frequency after the use of the cautery, and that was not to be wondered at, because only the papillomata which could be seen were destroyed, and the tendency of the bladder to form papillomata was not overcome. Secondary haemorrhage occurred with considerable frequency; in fact, in the majority of cases there was a fair amount of bleeding about the end of the first week, but he had not yet met a case which caused great anxiety. The treatment of carcinoma of the bladder with the diathermic cautery was another story. The results in his hands had not been at all good. Indeed, when the diagnosis was somewhat doubtful, the response to the diathermic cautery would show whether the condition was one of carcinoma or otherwise. The diathermic cautery was useful also in prostatic enlargement, particularly where there was a projection into the prostatic urethra or the neck of the bladder. Reference had been made to the small amount of scar tissue after the use of the diathermic cautery, and in no part of the body was it more important to prevent the formation of scar tissue than at the neck of the bladder.

Mr. PHILIP TURNER said that his attention was first attracted to the value of high frequency in surgical conditions at the Surgical Congress in Paris in 1908, and on his return he and Dr. C. E. Iredell started to treat malignant growths by fulguration, and some excellent results were achieved in cases of rodent ulcer. With regard to the indications for diathermy, rodent ulcer certainly gave the best results, and the most suitable type of rodent ulcer was one that was too far advanced for excision or in which the anatomical situation made the prospect of excision not favourable. Carcinoma and epithelioma, especially of the tongue, fauces, the floor of the mouth, and the pharynx, were also suitable, and another indication was in cases of extensive breaking down of tuberculous glands of the neck. His own results corresponded with those already mentioned—absence of pain and shock, a healthy granulating surface, and a remarkably supple scar. He had been doing diathermy now for eighteen years, and he could recall very few accidents—three burns, one a bad one, four secondary haemorrhages, one from the lingual artery, and, finally, one explosion, due to some ether in the operating theatre. Generally speaking, he had found, as regards local conditions, that the results were satisfactory, but many of the patients, especially those treated for conditions in the mouth, died afterwards with recurrences in the neck. It occurred to him that it might be possible, by previous injection of colloidal copper for many days before the operation, to guide the diathermic needle along the lymphatic tract, the idea being that the colloidal copper would be taken up by the cells of the growth, and the current be guided in that way. What actually happened, he believed, was that the copper impaired the vitality of the cells and so enabled the diathermy to act more effectively.

Dr. C. G. TEALL spoke of the treatment of growths of the oesophagus. He had applied diathermy in these conditions, feeling that from the patient's point of view anything was better than gastrostomy. By using a specially designed electrode which enabled one to restrict considerably the area to be burned, quite good results had been obtained of a palliative kind. One could burn away through the mouth, and yet be quite certain that the coagulation was being restricted to a very small area immediately around the electrode.

Dr. C. P. LANKESTER said that he had treated a few cases of haemorrhoids by diathermy, and had been greatly struck by the entire absence of pain afterwards. He regarded diathermy as by far the most satisfactory procedure in this condition.

Dr. CUMBERBATCH, in replying to the discussion, said that in the United States the use of the disc electrode—the first of the methods he had described—was now largely discarded, and the circumvallation method employed. He thought that no safe deductions could be made from experiments with potatoes and so forth. The problem of the distribution of the current in the living tissue was really very complicated, and the diffusion of heat, the frequency of the current, the mode of oscillation, and the type of conductor all played a part. The *lichtbögen Operation* was learned by Mr. Anderson in Forssell's clinic in Stockholm in 1923, but originally, he thought, it came from Germany.

Mr. STEWARD, also in reply, said that his pessimism with regard to treating cases by diathermy when bone was involved had been to some extent removed by certain cases shown that evening, and he was prepared to try again. To his mind the discussion demonstrated the great use of diathermy already in the field of surgery, and he believed that as a result of that discussion there would be still further advance.

DIAGNOSIS OF CORONARY THROMBOSIS.

AT a meeting of the Section of Medicine of the Royal Academy of Medicine in Ireland on December 3rd, with the President, Dr. G. E. NESBITT, in the chair, Dr. LEONARD ABRAHAMSON read a paper on the diagnosis of coronary thrombosis, in which he discussed the recent literature and the symptoms by which this condition could be recognized during life. He stated that clotting of even a large branch of the coronary system might be followed by recovery. The cause of the condition was apparently syphilis.

The PRESIDENT raised the question of the diagnosis of coronary arterio-sclerosis, which seemed to be a precursor of coronary thrombosis.

Dr. R. V. MURPHY mentioned a case he had recently seen. The patient was an old age pensioner, who when admitted to hospital was very ill and just recovering consciousness. He was cyanosed and very pale. He stated that he had had no previous illness, but had suddenly felt an agonizing pain over the pericardium. While consciousness was returning the pain was very severe; there was auricular fibrillation, and a ventricular rate of about 90. The heart sounds were weak, but there was no enlargement and no murmur. At first Dr. Murphy thought that it was a case of an acute abdomen, but after examination he concluded that the trouble was in the heart—either a thrombus or an embolus of the coronary artery. The patient recovered to a certain extent, but died within about forty hours of the attack. No necropsy was allowed.

Dr. C. J. MURPHY described the case of an elderly woman who complained of pain coming on suddenly over the pericardium. Her pulse was feeble, and her blood pressure low; she had pyrexia. She suffered from vomiting, and the liver was enlarged, as was also the heart. She died very shortly after the onset of the attack, previous to which her blood pressure had been high. She had been treated by Erlangen rays for sarcoma of the maxilla, which had cleared up absolutely after treatment. The necropsy showed an aneurysm of the aorta ruptured into the pericardium.

Dr. ABRAHAMSON, in reply, said that it was not easy, in his opinion, to diagnose coronary arterio-sclerosis, but in America it was diagnosed by electro-cardiograms. It was

portion of the book has been carefully revised, and the new edition fully maintains the reputation of the work as a standard encyclopaedia for pharmacy, and the editors have certainly done their utmost to provide full and up-to-date information for the pharmacist concerning every aspect of his multifold activities.

BOOKS FOR NURSES.

DR. F. A. ROUGET, who is in charge of the Civil Hospital in Mauritius, has been engaged in teaching nurses for the last twenty years. He has embodied his teaching in his *Précis de Nursing Médical et Chirurgical*,[4] which has reached a second edition. Dr. Rouget is of opinion that in training nurses it is necessary to guard against too low and too high a standard. A nurse should not be a mere machine; she must understand the why and wherefore of measures she is called upon to carry out. Initiative based on knowledge is of great value where the services of a medical practitioner are not easily available. So Dr. Rouget has made his book a theoretical and practical guide for the use of certificated nurses. As such it covers a vast amount of ground, but it is written in the rather unpleasant style of a compendium or synopsis which is so popular nowadays in works of this description. As a book of reference it might be more useful to the nurse if an alphabetical index were added to the table of contents.

A small *Outline of Surgical Nursing*[5] has been prepared by Dr. WOODALL in accordance with the syllabus of the General Nursing Council's examination in surgical nursing. More attention is given to classification of symptoms and treatment than to a description of appliances and tools, of which a nurse gains practical experience in the wards and theatre. The book is understandably written and brief, but stimulating allusions are occasionally made to the history of medical discoveries. After an account of inflammation and repair, there is a section on bacteriology and immunity, followed by a description of the diagnosis and treatment of haemorrhage, fractures and dislocations, burns, and ulcers. The requirements of the modern operating theatre are stated, as is the way in which a private house should be prepared for an operation. Due importance is assigned to post-operative nursing, and particular points about individual operations are mentioned. A chapter is devoted to the treatment and nursing of venereal disease, and another to gynaecology. The book will help a nurse who wishes to be proficient in surgical nursing.

The Theory and Practice of Nursing,[6] by Miss M. A. GULLAN, sister tutor of St. Thomas's Hospital, has also reached its second edition. The book summarizes the instruction given to nurses training in the Nightingale School of St. Thomas's Hospital. Miss Gullan says that her book is suggestive rather than exhaustive. She does not set out with the idea of teaching a nurse all she ought to know. She confines herself rather to matters which are directly connected with nursing; and, in order that the nurse may record the increase of her knowledge, blank leaves for notes are attached to each chapter. The book is clearly written, very well printed, and should be extremely useful to nurses.

The appearance of the seventh edition of Dr. J. K. WATSON'S *Handbook for Nurses*,[7] of which the first was published in 1899 and the sixth in 1921, is testimony of its appreciation by many generations of nurses. The principal features of the present edition are an expansion of the chapter on digestion, dietetics, and artificial feeding, and a description of recent work on scarlet fever, diphtheria, anaphylaxis, and the use of insulin in diabetes. The illustrations are for the most part good, but the coloured plates of the commoner skin diseases and the acute exanthemata are of little value.

The author of *Elementary Hygiene for Nurses*[8] states that the book has been written in accordance with the syllabus laid down for the final examination of the Australian Trained Nurses' Association. The third edition, which is now before us, is devoted to preventive medicine, and, although entitled "elementary," deals very thoroughly with each subject, and should therefore prove a useful reference book to students and practitioners. English standards have been adopted throughout. The final chapter, on health nursing, is very helpful, as it gives the official requirements a woman must fulfil to qualify as a school nurse, tuberculosis nurse, industrial welfare nurse, child welfare nurse, and health visitor. The appendix is packed with useful information, such as percentage solutions, incubation periods, animal parasites and methods of destroying. An index completes this useful manual.

As might be expected in a book from an American source, Dr. H. C. FALK'S *Operating Room Procedure for Nurses and Internes*[9] errs on the side of overloading the curriculum so far as nurses are concerned. With a view to bringing about more efficient co-operation between the surgeon, his staff of assistants and nurses, Dr. Falk has written nearly 400 pages on operation-room procedure alone. In his foreword Dr. EUGENE POOL says that the nurse gathers her knowledge largely from experience and receives too little organized and systematic teaching. With Dr. Falk's book she might almost think herself competent to undertake the operation. Half the book is devoted to detailed descriptions of various operations, with a large number of illustrations of the different stages. The earlier portion deals with the preparation of the theatre, the table, the dressings, the patient, the operating apparel, and the gloves. There is also a chapter on the manual signal system which has been adopted by Dr. E. H. Pool; it indicates when the nurse has to watch for "wiggling" of the surgeon's little finger.

NOTES ON BOOKS.

PROFESSOR JULIAN HUXLEY has collected into a volume entitled *Essays in Popular Science*[10] some eighteen articles and reviews. Among them is one on "Thomas Henry Huxley and religion," written at the time of the centenary of his grandfather's birth. The essays on heredity, the determination of sex, the dominant sex, the control of the life-cycle, and the meaning of death convey in clear language the teachings of modern biology. In discussing the inheritance of acquired characters the question whether or not hereditary constitution can be permanently changed by environment is considered, and the verdict of non-proven is returned. The author expresses the opinion that the refusal in 1924 of the Ministry of Health to allow the Battersea and Stepney local health authorities to give practical advice about birth control has merely resulted in making it more difficult for the poor, the timid, and the modest to practise it, while the rich and the less squeamish do so readily. Two-thirds of the volume are occupied by an account of the biological aspects of the frog and the tadpole; here we find a critical discussion of the hypothesis that the endocrine make-up of the various races of mankind is responsible for many of their characteristic morphological differences; the author points out its limitations, and thinks it inconceivable that all or a majority of these differences can thus be explained.

We have received two large volumes on medical radiology[11] prepared by four German writers. The book contains a carefully prepared and well illustrated account of recent work in

[4] *Précis de Nursing Médical et Chirurgical.* Par F. A. Rouget, O.B.E., M.D.Edin. Deuxième édition. Port Louis, Mauritius: P. G. Bumstead. 1926. (Fcap. 4to, pp. iv + 396; 13 figures.)

[5] *Outline of Surgical Nursing.* By S. J. Woodall, M.A., M.R.C.S., L.R.C.P., D.P.H. London: Law and Local Government Publications, Ltd. 1926. (Demy 8vo, pp. 176; illustrated. 5s. post free.)

[6] *Theory and Practice of Nursing.* By M. A. Gullan. Second edition. London: H. K. Lewis and Co., Ltd. 1925. (Demy 8vo, pp. xvi + 234. 9s. net.)

[7] *A Handbook for Nurses, with Examination Questions Based on the Contents of the Chapters.* By J. K. Watson, M.D.Edin., Captain, R.A.M.C. Seventh edition, revised. London: Faber and Gwyer, Ltd. 1926. (Cr. 8vo, pp. xvi + 802; 197 figures, 4 plates. 7s. 6d. net.)

[8] *Elementary Hygiene for Nurses.* By H. C. Rutherford Darling, M.D., M.S.Lond., F.R.C.S.Eng., F.R.F.P.S.Glas. Third edition. London: J. and A. Churchill. 1926. (Cr. 8vo, pp. viii + 261; 50 figures. 5s. net.)

[9] *Operating Room Procedure for Nurses and Internes.* By Henry C. Falk, M.D. With a Foreword by Eugene H. Pool, M.D. New York and London: G. P. Putnam's Sons. 1925. (Cr. 8vo, pp. xix + 385; 275 figures. 10s. 6d. net.)

[10] *Essays in Popular Science.* By Julian Huxley. London: Chatto and Windus. 1926. (Demy 8vo, pp. xii + 307; 5 plates, 20 figures. 16s. net.)

[11] *Ergebnisse der medizinischen Strahlenforschung.* Band I and Band II. Edited by H. Holfelder and others. Leipsig: G. Thieme. 1925 and 1926. (Sup. roy. 3vo, Bd. I, pp. vi + 748; 451 figures, 3 plates; R.M. 45. Bd. II, pp. 594; 520 figures, 3 plates; R.M. 52.50.)

Reviews.

GRAY'S "ANATOMY."

THE appearance triennially of a new edition of Gray's "Anatomy"[1] must now be regarded as an established tradition, and in keeping with it there appears this year the twenty-third edition. The nature of the subject matter and the fact that the book is mainly intended for students preclude much possibility of originality and expansion. The successive editions, however, give ample evidence of careful and exhaustive revision. Compared with that published in 1923 the present edition possesses twenty-two more pages and twenty-nine more illustrations. The increase in size is largely due to these illustrations, but important additions have been made to the text of those sections which deal with general anatomy, angiology, and the endocrine organs. Of the new illustrations those showing intramembranous ossification of bone, blood platelets, the dome of the pleura, the bed of the stomach, and the relations of the extra-hepatic bile passages are particularly valuable. While we are strongly of opinion that in such a textbook only observations of unquestioned accuracy should be included we are inclined to think that the editor's native caution might have been here and there slightly relaxed with advantage; for instance, reference might have been made to the palmar compartments described so well by Kanavel. Perhaps, too, a short note on the action of the palmaris brevis muscle recently described by T. S. Kirk might have been included. We should have liked also to find a less meagre account of the development of the vertebral artery, since it illustrates so admirably the arrangement in the embryo of the cervical segmental arteries. The only criticism we would offer on the illustrations is that in figure 107 the impression may, we fear, be conveyed that both the anterior and posterior tubercles of the transverse processes of cervical vertebrae are derived from the costal elements.

Such criticisms as these, however, are obviously of very small moment and should not in any way obscure the great outstanding merits of a work which is honourably known to many generations of English medical men—a work of which the last edition is indubitably the best.

NEPHRITIS.

DR. HERMAN ELWYN, assistant visiting physician, Gouverneur Hospital, New York, has dedicated to Professor Franz Volhard a well written work on *Nephritis*,[2] which contains much evidence of his inspiration. The diseases known as Bright's disease or nephritis are treated in successive chapters, and the bibliography is conveniently indicated, but there is a lack of illustrations. The author adopts Volhard's classification into the three groups of glomerulo-nephritis, nephroses or tubular degenerative nephritis, and arterio-sclerotic diseases of the kidney. These main headings are subdivided: thus glomerulo-nephritis is either focal or diffuse, and the focal may be embolic or non-embolic; the diffuse may be acute, subacute, subchronic, or chronic. Under the heading of arterio-sclerotic diseases there are included (1) cases with arterio-sclerosis of the renal artery and its larger branches, which do not present any definite clinical picture, (2) cases of renal arteriolo-sclerosis without any evidence of renal insufficiency but presenting the clinical syndrome of benign hypertension, and (3) renal arteriolo-sclerosis with renal insufficiency, the malignant form of renal arteriolo-sclerosis, or the malignant form of hypertension. Among the early chapters are two dealing with uraemia and hypertension generally; later the benign and malignant forms of hypertension are considered under the heading of renal arteriolo-sclerosis, where the problem whether or not high blood pressure causes or is due to the renal arteriolo-sclerosis is discussed. Much stress is laid on heredity as determining the characteristics of the arterial walls and of the vasomotor system.

The nephroses are well described in separate chapters dealing with the lipoid, the amyloid, and the mercurial forms. Lipoid nephrosis, first investigated clinically by Volhard, does not show any impairment of function by functional tests, and the accompanying albuminuria is, after a full discussion, ascribed to a disturbance in the intracellular respiration of the glomerular and capsular epithelium, and possibly to an acid intoxication of the cells. The treatment of lipoid nephrosis is Epstein's high protein diet, restriction of fats, and administration of thyroid, which was introduced by Eppinger before its justification by the low metabolic rate was known. In the account of amyloid nephrosis it is pointed out that oedema is mainly dependent on the addition of lipoid nephrosis, and that in the absence of this change oedema is either slight or does not occur at all. The special form of nephrosis due to mercury perchloride poisoning is fully discussed, and the necrosis of the renal epithelium is stated to be probably due to two factors—the direct action of the mercury and temporary cessation of the blood supply. The various views held about puerperal eclampsia and the kidney of pregnancy are stated before the author puts forward his suggestion, which would obviate the need for a hypothetical toxin—namely, that a greatly increased neuro-muscular irritability causes spastic arterial contraction.

This is a clear presentation of the modern aspect of a subject which has undergone great changes during this century, and as such deserves a cordial welcome.

PRACTICE OF PHARMACY.

Remington's Practice of Pharmacy[3] has been the standard American work on this subject since the appearance of the first edition in 1885. The seventh edition, which has just appeared, is a massive volume of more than 2,000 pages, which deals in an encyclopaedic manner with every subject that is of professional interest to the pharmacist. Professor Remington died in 1918, soon after the appearance of the sixth edition, and the present edition has been prepared by Professors COOK and LAWALL, who assisted Professor Remington for many years in the editing of previous editions of this work.

The *Practice of Pharmacy* covers a remarkably wide range of subjects, and the editors have been assisted by the expert advice of no fewer than thirty-nine collaborators. The volume is divided into seventeen parts. The first six occupy half the book, and describe the technical operations in pharmacy and the substances used in pharmacy. The general form and arrangement have not been altered since the last edition, but its scope has been enlarged by the addition of certain chapters dealing with aspects of the pharmacist's work that are becoming of increasing importance in the United States. Such chapters are those on "The responsibility of the pharmacist under the law," "Scientific business methods and control," "The pharmacist as analyst," and a chapter on toxicology and antidotes.

An interesting feature of the introduction is the quotation *in extenso* of the principles of pharmaceutic ethics adopted by the national pharmaceutical organizations and the colleges of pharmacy. One important clause of this states that the pharmacist should as far as possible encourage the use of official drugs and preparations and discourage the use of objectionable nostrums, and this last term is defined by a statement of the minimum requirements with which a proprietary preparation should comply.

A noteworthy feature of the book is a chapter on biological products, which gives a clear account of the mode of preparation of antitoxins, vaccines, etc., the tests for potency, and the precautions needed for storing and dispensing such preparations.

About half the volume is devoted to the consideration of the drugs used in pharmacy, and a full account is given of the tests for purity, chemical characteristics, mode of preparation, and history of all the standard drugs; this

[1] *Anatomy, Descriptive and Applied.* By Henry Gray, F.R.S., F.R.C.S. Twenty-third edition, edited by Professor Robert Howden, M.A., M.B., C.M., D.Sc., LL.D. London: Longmans, Green and Co., Ltd. 1926. (Roy. 8vo, pp. xiv + 1400; 1,294 figures. 42s. net.)

[2] *Nephritis.* By Herman Elwyn, M.D. London: H. K. Lewis and Co., Ltd. 1926. (Demy 8vo, pp. 313; 2 plates. 21s. net.)

[3] *Remington's Practice of Pharmacy.* Seventh edition. By E. Fullerton Cook, P.D., Ph.M., and Charles H. LaWall, Ph.M., Pharm.D., Sc.D., F.R.S.A. London: J. B. Lippincott Company. 1926. (6¼ × 9¼ pp. xxiv + 2090; illustrated. 45s. net.)

British Medical Journal.

SATURDAY, DECEMBER 25TH, 1926.

CORONERS' LAW AND THE REGISTRATION OF BIRTHS AND DEATHS.

It is now twenty-one years since the British Medical Association first drafted a Coroners Bill, and sixteen years since a departmental committee, before which the Association had given evidence, reported in favour of many of the reforms which had been advocated and attempted. Except for certain temporary war legislation, however, no substantial modification of the law had been accomplished when, last year, the Association reviewed the whole subject of the reform of the coroner's court and of the registration of births and deaths. As a result of this review a slightly modified policy was adopted by the Representative Body at Bath, and pressure was once more brought to bear on Government departments with a view to legislation. This preparation and pressure has now borne fruit more speedily than might have been expected from the previous history of the matter. A Coroners (Amendment) Act, 1926, and a Births and Deaths Registration Act, 1926, now stand upon the statute book, both having received the Royal Assent last week. The former comes into operation on May 1st and the latter on July 1st next.

Neither of these Acts is perfect, nor fully in conformity with the policy of the Association. The Coroners (Amendment) Act was a Government measure, and accomplishes so much in the way of reform, and is, on the whole, accepted as so satisfactory, that it is very unlikely that any further alterations will be made in coroners' law for a considerable time to come. The full effect of the Act will, however, not be evident until certain further action has been taken by the Lord Chancellor and the Home Secretary, for the Act follows the not very laudable practice of modern legislation in relation to the powers of Government departments, and gives to them authority to "make rules for regulating the practice and procedure at or in connexion with inquests and *post-mortem* examinations." It is to be hoped that when such rules are issued the present arbitrary powers of the coroner, which have sometimes been gravely abused, will be found to have been wisely regulated. The Births and Deaths Registration Act, on the other hand, was a private member's bill, and, though benevolently regarded by the Government, is of very restricted scope, this being severely limited by the rule that no such bill may contain any provision which imposes a charge on public funds, whether taxes or rates. Nevertheless, something useful has been accomplished by it. Dr. F. E. Fremantle, one of its chief sponsors, was modest enough to claim only that its great merit is to improve the procedure in connexion with stillbirths; but it remains true, as Sir Richard Luce pointed out during the second reading debate, that the inadequacy of the law with regard to death certification and registration is by no means removed by it, and that further legislation is still urgently needed to carry out the policy of the British Medical Association in this regard, both for the safety of the public and to secure justice for the medical profession.

The provisions of these two measures, as they then stood, were set out with some fullness in our leading articles on December 12th, 1925 (p. 1134), and on March 27th last (p. 582). Their progress has been carefully watched since the latter date, and action has been taken from time to time to bring to the notice of Government departments concerned, or to make clear to Parliament, the importance of those points of the Association's policy which seemed to be inadequately dealt with. Some very important changes were in consequence effected in the Coroners (Amendment) Bill during its last stages in the House of Commons. The proceedings were reported at some length in last week's issue of the JOURNAL (at page 1200). These will repay careful perusal. It is now provided (1) that if a coroner is of opinion that a *post-mortem* examination may prove an inquest to be unnecessary, he may arrange for this to be made, and for the medical practitioner making it to report the result in writing; (2) that the fee for such examination and report shall be two guineas; (3) that for attending to give evidence at any inquest, without having to make a *post-mortem* examination, the fee shall be one and a half guineas for each day; (4) that for making a *post-mortem* examination and for attending to give evidence at the inquest the fee shall be three guineas for the first day and one and a half guineas for each subsequent day; and (5) that where there is any charge of improper or negligent treatment of the deceased person by a medical practitioner or other person, such medical practitioner or other person shall have the right to be represented at the *post-mortem* examination. Though the fee for performing a *post-mortem* examination still remains quite inadequate, these provisions are a great improvement on those previously contained in the bill, and thanks are due to the medical members of the Standing Committee, and to Captain Hacking and others, for the amendments effected. It may be noted that Mr. Rhys Davies, both in Committee and subsequently in the House on the Report stage, asked the Labour members to support amendments denying even these small measures of justice to the medical profession. Two other important points emerged from this discussion. On the question of making travelling allowances to medical men performing necropsies or attending inquests, the Under Secretary for Home Affairs stated that the legality of paying such allowances had never been challenged; and on the question of a coroner having power to call for, and pay for, a report from a duly qualified medical practitioner recently in attendance on the deceased if (even without a necropsy) such report might render an inquest unnecessary, it was stated on the same authority that it was open at present for a local council to undertake any reasonable expenditure in obtaining such a report, that fees of half a guinea had been paid, and that, instead of asking for legislation to impose this, the proper course was to get local authorities to exercise their existing powers to provide in schedules for such a fee. "Later," it was added, "backward authorities could be brought into line by the Home Secretary."

It is obvious that, although there is still need for careful attention to the whole field partially covered by these two Acts of Parliament, they do at any rate go some considerable way towards meeting the suggestions of the medical profession that further precautions should be taken with regard to stillbirths, and that the status and position of coroners, and of medical practitioners in relation to the work of coroners, should be more satisfactorily defined and regulated, in their own and the public interest.

connexion with the practical use of x rays, radium, and ultra-violet rays in treatment. The large amount of detail in the text and the great care that has been devoted to the illustrations will render the book valuable for reference.

The second edition of the elementary work on medicine[12] by Dr. A. VON DOMARUS, the first edition of which we noticed little more than two years ago (JOURNAL, June 7th, 1924, p. 1009), has been brought up to date, and most of the omissions to which we drew attention have been made good.

The *Army Manual of Sanitation*[13] marks a considerable development in the measures taken for instructing regimental officers and other ranks of the army in the principles and practice of hygiene and sanitation. Instruction of this kind was first introduced in 1907 by the issue of a *Manual of Sanitation in its Application to Military Life*. The little volume now issued contains eight chapters and ten appendices, and is full of useful illustrations and practical information. A short preface by Sir Herbert Creedy indicates the scope of the book as that of an elementary manual suitable for the non-medical reader. We congratulate the compilers on the production of a volume of exceptional merit. Its sphere of usefulness might well extend beyond military circles, and in many respects act as a guide to those interested in the instruction of the civil population as a whole in the principles of hygiene and sanitation.

Dr. ATWOOD THORNE has written a book entitled *Pink Lustre Pottery*,[14] which will be of special interest to collectors of the antique, since very little attention has been previously given to pink lustre in the few publications which deal with English pottery. The author found many good specimens in the museums at Sunderland, Newcastle, and Etruria (Messrs. Wedgwood), and has succeeded in producing a comprehensive account which is concise and easy to read. The book adds considerably to the available knowledge of this subject, and we suggest that in the next edition figures representing the seasons would be appreciated, since they are rarely published nowadays. Mr. MARTIN A. BUCKMASTER contributes a preface, and the book, which is dedicated to the "many delightful dealers" met by the author, will be found a useful handbook for collectors.

In *The President's Hat*[15] Mr. ROBERT HERRING writes a chatty account of a visit to Andorra, the remote republic in the Pyrenees, which has recently acquired some international celebrity. The book describes the adventures encountered on a walking tour through the country and the surrounding neighbourhood, and conveys a clear and pleasant impression of the customs of the inhabitants. The scenery is illustrated by drawings by Mr. Hubert Williams which add considerably to the value of the book.

[12] *Grundriss der inneren Medizin.* Von Dr. A. von Domarus. Zweite verbesserte Auflage. Berlin: Julius Springer. 1926. (Med. 8vo, pp. xv + 650; 58 figures.)

[13] *Army Manual of Sanitation, 1926.* London: H.M. Stationery Office. 1926. (Cr. 8vo, pp. 134; 66 figures. 6d. net.)

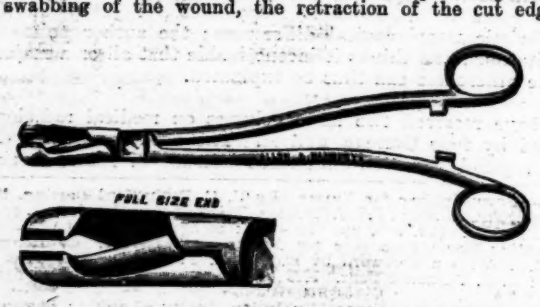
[14] *Pink Lustre Pottery.* By Atwood Thorne, M.B.Lond. With a preface by Martin A. Buckmaster. London: B. T. Batsford, Ltd. 1926. (Cr. 4to, pp. xv + 38; 21 plates. 10s. 6d. net.)

[15] *The President's Hat.* By Robert Herring. London: Longmans, Green and Co., Ltd. 1926. (5½ × 8½, pp. 218; illustrated. 10s. 6d. net.)

PREPARATIONS AND APPLIANCES.

Perineorrhaphy Combined Scissors Needle Holder.

MR. W. MCK. H. MCCULLAGH (London) writes: Attached is the drawing of an instrument most useful in the repair of perineums. The swabbing of the wound, the retraction of the cut edges of



the vagina, the insertion, tying, and cutting of the numerous sutures, requires many hands. I find the equivalent of one is saved by this instrument. The idea was suggested by seeing Mr. Gillies use his scissors needle holder. The assistant swabs and retracts by holding the short end of the last suture. The operator, by means of the instrument, inserts his suture, ties the suture with the instrument still in his hand, and then cuts the last short end and the long end of his present suture with the scissors in the needle holder. The instrument has been made by Messrs. Allen and Hanburys Ltd., of Wigmore Street, W.1.

Nova et Vetera.

DIRECT ADVERTISING IN 1815.

DR. JOHN F. WALKER of Southend sends us two samples of bygone medical advertising which suggest that the baser sort of practitioners had considerable latitude in making themselves known to the public 111 years ago. Both extracts are from the advertisement columns of the *Times* of August 23rd, 1815, and the phraseology of each is very like that used by the quacks of modern times who exploit sufferers from venereal disease or frighten masturbators into their clutches. The first runs:

DEBILITY, etc.—Messrs. GOSS and Co., Members of the Royal College of Surgeons in London, continue to direct their attention to those diseases by which the power of the constitution becomes enfeebled; and their experience in such cases, during a long and successful practice, enables them to offer to persons so afflicted, a safe and speedy restoration to sound and vigorous health. A certain disorder frequently contracted in a moment of intoxication, as also its concomitants, are by their plan of treatment (without restraint in diet or exercise) speedily and effectually cured; and where an early application is made, on discovery of the infection, the complaint is frequently removed in two days. By professing exclusively the cure of such complaints, and in order that they may not be marked by a mistaken few with the obloquy so justly attached to the ignorant empiric, Messrs. Goss and Co. think it but justice to themselves to state, that they have been regularly educated in every branch of the profession (certificates of which, from different hospitals, and testimonials from the most eminent physicians, they have to convince any enquiry) that the success resulting from their endeavours first induced them to quit the practice of the general practitioner; and they presume that their pretensions constitute a fair ground for the unprecedented confidence with which they have, by the public, been so liberally honoured. To be consulted at their house daily, by either sex, personally or by letter, with secrecy, delicacy, and attention. Letters for advice and medicine to contain a bank note.—Goss and Co., surgeons, 13, Bouverie Street, Fleet Street.

The second advertisement, though its authors are less explicit about the possession of a surgical diploma, is equally florid in style.

RENOVATED HEALTH.—It has been too frequently the subject of just and general reprobation, that men destitute of the elements of the medical art, have offered themselves as candidates for public patronage in the profession of physic. For the purpose of doing justice to the result of our studies, and experience, and to prevent us from being classed among those empirics whose impudent pretensions have unfortunately for society, been too favourably received we beg leave to submit, to the liberal and enlightened, a faithful statement of our pursuits and acquirement. After having received a regular medical education, as the pupils of Messrs. Grindal and Blizard, whose lectures and practice we carefully attended, as professors and surgeons of the London Hospital, we entered ourselves as students in that justly celebrated school for medical acquirements, the Royal College of Edinburgh, and were instructed in the different branches of Anatomy, Surgery, the theory and practice of Physic, Chemistry, Midwifery, Botany, etc., by those eminent professors, Drs. Munro, Gregory, Black, Hamilton, Duncan, and Rutherford. We trust we shall not be deemed prosumptuous in saying that our proficiency and acquirements are not inconsiderable. Having for a long series of years made certain complaints, and the various diseases of debility, the particular object of our studies and practice, it will, we hope, be allowed that we have acquired superior knowledge of their treatment and cure. In slight and recent cases of infection, a perfect re-establishment is completed in the short period of two days, and in those of the utmost inveteracy, where other practitioners have failed of success, a proper perseverance in our plan of treatment insures to the patient a safe and radical cure. Amidst the melancholy variety of disorders which are the effects of a habit long and most unhappily pursued by the youth of both sexes, there are none more alarming or distressing than those debilities which frequently embitter life. To such persons it must be a consoling reflection to know that that they may now, by a new and infallible mode of treatment, be restored to the greatest of all blessings—a strong, manly, and vigorous constitution. In all cases of debility, from whatever cause arising, as well as in every species of certain infection, we may be consulted by patients of either sex, with the greatest secrecy and honour. Hours of consultation at home, from 10 to 3, and from 6 in the evening till 10 at night. Patients in the country are requested to state the particulars of their case, age, and general habit of living, etc., inclosing a remittance for advice and medicine, when the same will be given or sent to any part of the kingdom. To insure that secrecy so essential to an undertaking, the postage of letters may be added to the account for medicines.—CURRIE and Co., Surgeons, 107, Hatton Garden.

mittee of the British Medical Association in Australia, was approved by the conference. The conference also concurred in general with the recommendations of the Commission on venereal disease, maternity hygiene, child welfare, industrial hygiene, and other matters, and referred certain subjects to the Federal Health Council for consideration in detail. The recommendations of the Commission with respect to the encouragement and development of research were unanimously adopted. The conference endorsed the view of the Commission that co-operation between general practitioners and public health authorities was an essential feature in a health policy. The conference adopted the recommendations of the Commission with regard to health publicity, and accepted a reference, not moved as a definite resolution, by Mr. J. Stopford, Home Secretary and Minister of Health of Queensland, to the effect that the Commonwealth should undertake special investigations and campaigns, as in relation to hookworm, compilation of statistics, and publicity, the States to co-operate and extend to Commonwealth officers the powers and authorities of the State laws. It will be recalled that the Royal Commission was concerned with Commonwealth questions only, as affecting either the Commonwealth itself or the Commonwealth in its relation to States, since inter-State legislation and administration were not included in its reference. There is probably no other single question more important to the health of Australia at the present time than the establishment of effective co-ordination to protect the continent as a whole from invasion by disease from without, and to secure united action between the States and the Commonwealth for the general benefit of all. In the issue of the JOURNAL above referred to we expressed the view that the report of the Royal Commission was worthy to receive the attentive consideration of those in whose hands any legislative or other action might lie. It is matter for satisfaction that procedure has been initiated to make its valuable recommendations operative.

THE ORIGIN OF SYPHILIS: NEW WORLD OR OLD?

THE problem of the first appearance of syphilis in Europe has been debated from the time of Christopher Columbus to the present day. From that date onwards there has been a widespread opinion that the disease was brought from America by the sailors of Columbus on the return voyage in 1493. There is, however, no direct evidence of this; that is to say, there is no proof of a sailor having contracted syphilis from an American woman, and contrary opinions have been held on the subject from the first. In a learned work on the origin of syphilis[1] Dr. Gaston Vorberg has collected together what appears to be the entire body of available evidence on the question, and has placed the points at issue in a clear light. The supporters of the American theory, of whom Bloch is the most important among modern writers and Oviedo among the contemporaries of Columbus, rest their case upon the following alleged facts: That a pre-Columbic syphilitic bone has never been discovered in the Old World; that an epidemic outbreak of syphilis occurred at the close of the fifteenth century; that the outbreak synchronized with the return of Columbus from America; and that the spread of the disease followed in the footsteps of Columbus's sailors. It should be premised with regard to the older writers that they were somewhat addicted to the *post hoc ergo propter hoc* type of reasoning, and were apt to see a causal connexion between concurrent events without very close examination. For instance, the fact that syphilis and its remedy, guaiacum, occurred in the same locality was sufficient proof for them that syphilis originated in that locality, since where a disease started there the Almighty would provide a remedy. With regard to pre-Columbic syphilitic bones, it is a remarkable fact that they are practically unknown; but it has been shown by Hrdlička that the same is true of America. That observer examined thousands of skeletons from all parts of America, and failed to find an undoubtedly pre-Columbic syphilitic bone. Dr. Vorberg, however, gives descriptions, illustrated with good figures, of what he holds to be two syphilitic bones—a humerus and an ulna—which were excavated in 1872 by de Baye from a burial cave in the Petit Morin valley, and are estimated to date from the latter part of the Neolithic period. Judging from the photographs, few pathologists would hesitate to pronounce them to be syphilitic had they been from a present-day patient. On the other hand, no wary pathologist would care to commit himself to the assertion that there was no other disease resembling syphilis in Neolithic times. Taken by themselves it would be unwise to attach great importance to them, although it is possible that the result of further excavations may enhance their value. With regard to the "epidemics" of syphilis referred to above, they were connected with Charles VIII's disastrous invasion of Italy, in which his armies were decimated by disease. It can readily be believed that, if syphilis existed at the time, it would undergo a rapid increase as the result of that invasion; but Dr. Vorberg gives good reasons for thinking that the epidemics were of dysentery and typhoid fever rather than of syphilis, and he also adduces a considerable amount of evidence to show that the occurrence of syphilis in the trail of Columbus's sailors is mythical. The case for the American theory thus appears to be weak, and for a satisfactory alternative it would seem necessary to await the results of more extensive excavations. Dr. Vorberg has scrutinized the terra-cottas, sculptures, and literature of ancient times for evidence of the Old World origin of syphilis, and has summoned two distinguished historical personages as witnesses—namely, Caesar Augustus and Socrates. Although it cannot be said that the venereal histories of famous men form an attractive subject of study, there is some satisfaction in learning that the alleged syphilitic taint in Caesar Augustus is not borne out by an exhaustive scrutiny of his numerous personal blemishes. Unfortunately, the same cannot be said of Socrates. The author has given admirable photogravures of six different busts of Socrates, and the profile view of that in the Louvre, more particularly as regards the nose, almost compels the conviction that a true bill must be returned in this case. Socrates himself was aware of the defect, for it formed the central point of the discussion between him and Kritobulos on the subject of beauty. "Now take noses," said Kritobulos, descending to personalities somewhat; "would you consider yours or mine the finer nose?" "Well," replied Socrates, "if the God of Noses made noses to smell with, there can, I think, be little doubt that mine is the superior of the two. Your nostrils are directed downwards, whereas my nose is tilted up, so that it can receive smells coming from all quarters." "But surely it is a mark of distinction to have a good bridge? Your nose is flat!" "Yes, but with a nose like mine," said Socrates, "one is able to command a much larger segment of the horizon with each eye." In such fashion was the genial sage wont to inculcate philosophic wisdom.

[1] *Über den Ursprung der Syphilis.* Von Dr. Gaston Vorberg. Stuttgart: J. Puttmann; London: Peter Davies, Ltd. (Med. 8vo, pp. 111; illustrated. 2s. net.)

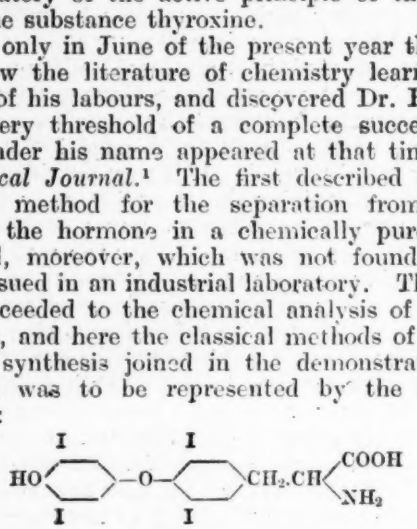
GASPARO ASELLI.

THE series of portraits of Italian doctors and naturalists from the fifteenth to the eighteenth century published by the Italian Historical Institute of the Healing Art contains a woodcut of the celebrated anatomist Gasparo Aselli, with an account of his life and work by Professor Pietro Capparone, the eminent medical historian of Rome. Gasparo Aselli was born at Cremona in 1581, and at an early age became a surgeon in the Italian army, and

THYROXINE.

LAST week the Chemical Society resolved to award the Edward Frank Harrison Prize for 1926 to Dr. C. R. Harington of University College Hospital. The achievement which has earned this tribute from the colleagues of Dr. Harington has been the synthesis in the laboratory of the active principle of the thyroid gland—the substance thyroxine.

It was only in June of the present year that those who follow the literature of chemistry learnt of the progress of his labours, and discovered Dr. Harington on the very threshold of a complete success. Two papers under his name appeared at that time in the *Biochemical Journal*.[1] The first described a greatly improved method for the separation from thyroid tissue of the hormone in a chemically pure state—a method, moreover, which was not found wanting when pursued in an industrial laboratory. The second paper proceeded to the chemical analysis of the pure substance, and here the classical methods of degradation and synthesis joined in the demonstration that thyroxine was to be represented by the chemical structure:



In one particular only was this formula uncertain. The position of the four iodine atoms could not be definitely affirmed. It had been possible to remove these from the molecule of the natural product. It had been possible by two independent methods to synthesize in the laboratory the iodine-free substance by a series of reactions accurately defining its structure. It had not then been found possible to introduce into the synthetic substance those four atoms of iodine which, in their proper orientation, would create the molecule which is thyroxine. The story as it could be related in our issue of June 26th (p. 1092) was almost, but not quite, complete. It seemed that one more step only was necessary, but it now appears that the key to the problem lay far back in the chain of synthesis, and that ultimate success was to be achieved by introducing part of the iodine into the raw materials of the synthesis.

In a joint communication by Dr. Harington and Professor G. Barger to the December meeting of the Biochemical Society,[2] the final solution of the problem was unfolded. Commencing with hydroquinone and tri-iodo-nitro-benzene — materials which inspired a press report to describe, a little optimistically, the synthesis of thyroxine from "coal tar products and iodine"—a series of classical organic reactions were adapted with masterly tidiness to the issue of a product of the above chemical structure. The substance was chemically indistinguishable from that isolated from thyroid glands. The chemical chapter is complete, the biological story opens. Use was made of the now well established quantitative effect of the hormone on the basal metabolic rate. Two myxoedematous patients were chosen. Their basal rates were respectively 32 and 45 per cent. below normal. Intravenous injection of the synthetic substance was spread over six days to a total dose of 14 mg., and the basal metabolic rates rose, in the first case to 6 per cent. short of normal, and in the second to 3 per cent. above normal. There occurred a coincident fall in body weight and increase in the pulse rate. Such activity was quantitatively as great as that given by natural thyroxine. Physiologically the two substances were indistinguishable. The structure of thyroxine requires the existence of two stereoisomeric forms, and we may suspect that the thyroid gland, by virtue of that elusive asymmetry of vital activities, synthesizes and employs but one of these isomers. That the substance obtained from the gland is the racemic mixture is due to the inevitable racemization which accompanies the process of separation, and it is not improbable that a resolution of thyroxine into its active forms will show that physiological activity is restricted to one only of these. This form should then be twice as active as the materials yet tested. The methods of physiology must now take the field. With thyroxine to hand there is available a means for the quantitative study of the role of the hormone and the function of the gland. Moreover, a study of the comparative effects of thyroxine and of its iodine-free derivative should provide an interesting exercise in the relation of chemical constitution to physiological activity, and, at the same time, offer some explanation for the association, which has yet to be explained, of iodine with the thyroid. The clinician waits upon and will supplement these avenues of investigation. He will be on his guard against the effects of overdosage, and will watch for the reaction of different abnormalities of thyroid function to administration of thyroxine. He will ask also the comparative cost of the synthetic and of the natural product. He will soon be answered. The series of synthetic reactions is complex, but the favourable conditions are defined and the yields are not meagre. The method is essentially practical, and may well prove economic. As with adrenaline, synthetic thyroxine will probably replace the natural product and those crude gland preparations of so uncertain potency.

The committee which resolved to award the Harrison Prize to Dr. Harington comprised the Presidents of the Chemical Society, the Institute of Chemistry, the Society of Chemical Industry, and the Pharmaceutical Society. Thus have the theoretical and applied interests of a science united to acknowledge the common benefit in a great academic adventure.

[1] *Biochem. Journ.*, 1926, 20, 293, and 300.
[2] *Chemistry and Industry*, December 10th, 1926.

HEALTH ADMINISTRATION IN AUSTRALIA.

THE report of the Royal Commission on the health of Australia, referred to in the JOURNAL of August 7th last (p. 268), has been under consideration by a conference of Ministers of Health of the Commonwealth and constituent States. The conference, which took place at Melbourne, agreed that the Commonwealth should summon a meeting of professional heads of health departments, with Commonwealth and State statisticians and hospital superintendents, with a view to improving the existing system of collecting mortality and morbidity statistics. With regard to the shortage in Australia generally of highly trained experts in public health, the conference recommended that the Commonwealth should consult the various universities and medical schools, with a view to the establishment of a school of preventive medicine and tropical hygiene for experts and the better teaching of preventive medicine to medical students. The conference agreed with the recommendation of the Royal Commission that there should be a Federal State Council, acting in an advisory capacity, for the purpose of securing closer co-operation between Commonwealth and State health authorities. The general scheme of health administration, recommended by the Commission and intended to be carried out by the Federal Health Council, which is in agreement with suggestions originally put forward by the Federal Com-

Maxwell, reviews in another article the highly controversial subject of preliminary medical training, and contrasts the British view that the medical authorities need only fix a standard to be reached with the American requirement that the medical authorities must themselves prescribe the quality and duration of this instruction. In China a middle course has been steered hitherto, but the tendency is now towards the adoption of the British custom of allowing such preliminary education to be undertaken outside the medical schools, which only reserve the right of testing the degree of proficiency reached by the students. A pre-medical syllabus was approved by the China Missionary Medical Association in 1920, and covers two years' work in biology, chemistry, and physics. Though this syllabus has not been wholly adopted by any one school, it has proved to be a very valuable standard of reference for the medical schools and for the other institutions which cater for intending medical students.

THE MALARIA COMMISSION IN SPAIN.

ALL measures directed to the repression of malaria in Spain were in 1924 placed under the charge of the Central Malaria Commission, which now forms a section of the Third Division of the General Public Health Department at Madrid. It possesses authority to pronounce districts infected, to form district malaria boards, to set up dispensaries, and to issue quinine. The dispensaries control the local work of the Commission in infected districts. They number about twenty in all at the present time. They provide for clinical and blood examinations, the treatment of the sick, the following up of suspects, the issue of quinine, and the suppression of mosquitos. They were supervised at first by medical officers from the central department; they are now in charge of local medical men who have undergone a special course of training. One of the aims of the Commission was to make a general survey of the prevalence of the disease. Malaria is not compulsorily notifiable, but mortality records for 1924 show 1,195 deaths, equal to a general death rate of 5.5 per 100,000. A local death rate may rise to 20 (as in Huelva) or 60 (as in Caceres) per 100,000. The morbidity figure for the whole country has been computed at 300,000 cases annually. Treatment of the sick to a final cure is another object of the Commission. To it is given the place of honour, and it has played a conspicuous and useful part in the plan of working. The propaganda campaign, on the other hand, has had but limited success. The people in many cases will not set themselves seriously to wage war upon the mosquito, or adopt the use of mosquito netting or wire-gauze proofing for their houses. The opinion is commonly held that malaria is apt to prevail near marshes or in wet country, where mosquitos abound. Spain presents the anomaly of malaria due to water deficiency. Such at least would appear to be the case in its most seriously infected districts. Owing to the dryness, agricultural lands are irrigated by artificial channels containing exposed slow-moving water in which mosquitos can breed. So, too, with water for domestic purposes; the rainfall of the wet seasons is led into artificial ponds or tanks near houses, and stored in the open accessible to mosquitos. So, too, even with natural watercourses; the hill torrents, which run full in winter, dry up in summer to a chain of pools. In all these open pools and channels, whose existence about the haunts of men is due to local shortage of water, anopheline mosquitos develop, and emerge to propagate malaria. The plan of implanting *Chara foetida* and *Chara fragilis* in streams to act as killers of anopheline larvae is not encouraged by the experience of the Commission. Better results have been obtained through the activities of the fish Gambusia, introduced as a larvicide from the United States in 1921. It feeds on the larvae freely, and seems to have become well acclimatized. Rice fields, such as those in Valencia and Tortosa, are not thought to be specially dangerous as centres of infection provided their irrigation systems are carefully attended to. The lower the social and economic condition of the people, the higher is the malaria rate. The better sort are more alive to the need for precautions, and have readier access to medical aid. A good medical service for the treatment of the sick is a powerful factor in the protection of the sound, since a patient from whose blood the plasmodium has disappeared does not infect mosquitos. The seasonal movements of agricultural workers, acquiring infection in one place and carrying it to another, have a notable effect in disseminating the disease through the country districts. The most prevalent form of malaria in Spain is tertian, but the quartan fever is common. The tropical variety is comparatively infrequent. The vector is *Anopheles maculipennis*. The disease in general is not of a severe type, and its incidence has declined in recent years, but it still occasions much sickness. The protean character of the malaria problem, to which we referred in a recent article, is well brought out by the work of the Commission. The local activities have already been productive of benefit, and the plan of campaign, if persevered in and extended, should produce greater benefit still.

THE CURE OF ANKYLOSIS OF THE KNEE.

FOR many years surgeons have been striving to find a means of restoring movement and usefulness to ankylosed knee-joints. Dr. Charles-Henri Chevallier, in an excellent monograph[1] just published, has described their efforts and the steps by which success has been achieved, so that in 1923, after Putti of Bologna had demonstrated his methods and results to the International Congress of Surgery in London in 1923, it could be said that arthroplasty of the knee-joint is no longer a hazardous operation but a well established proceeding, giving far better results than the stiff straight ankylosed knee which used to be aimed at as the best functional result. It is fitting that this plastic operation should have been brought to its present state of technical excellence in the city of Tagliacozzi. After relating the work of Murphy, Hoffa, Payr, Baer, and MacAusland, all of whom obtained good results, Dr. Chevallier describes the modification of Putti's operation which he prefers. The following are the conclusions to which Dr. Chevallier has come; we commend them to our readers. In ununited fractures we find false joints which approach in their anatomy to normal joints, and these are due to the interposition of soft parts between the bone-ends. Experiments on animals support this view. A straight ankylosis of the knee ought no longer to be considered a happy result after injury or disease. In suitable conditions arthroplasty is the operation of choice, but not a routine operation. The best method at the present time is that of Putti, in which, after clearing and shaping the ends of the bones, a free strip of fascia lata is interposed between them. The operation is only the beginning of the treatment. The functional result depends almost entirely on the will-power and perseverance of the patient. Improvement in the new joints thus formed goes on for years; gradually they approach nearer and nearer to the normal, but are fortunately less liable to infections conveyed through the circulation. One of the earliest successes—an officer operated on by Payr—had subsequently a suppurating compound fracture of the lower third of the femur without any effect on his factitious knee-joint. There are recorded more than 440 arthroplastic operations on the knee by various methods. Of the sixty-three cases reported by Putti, more than 83 per cent. were successful.

[1] *L'Arthroplastie du Genou.* Par Dr. Charles-Henri Chevallier. Paris: Masson et Cie. 1926. (Roy. 8vo, pp. vii + 152; 7 plates. 2s.)

acquired considerable skill as an operator. He stayed for a long time at Milan, where he developed a large practice and was created an honorary citizen by the Senate. He subsequently became professor of anatomy and surgery at the University of Pavia. At this period the enthusiasm for dissection of the human body which had prevailed among the earlier sixteenth century anatomists was somewhat on the wane, and was being replaced by a study of comparative anatomy and the experiments on animals which led to important physiological discoveries. The existence of lacteals, which had been described by Herophilus and Erasistratus but subsequently denied, was again demonstrated by Aselli on July 23rd, 1622, at Milan in a dissection of a dog which had been killed during digestion. After verifying this discovery in many other animals he published his observations in a work entitled *De lactibus sive de lacteis venis*. He did not complete his discovery, inasmuch as he traced the lacteals of the mesentery to the liver, where he believed they emptied themselves. It was not until 1651, as we pointed out some time ago (1925, vol. i, p. 711), that Jean Pecquet in his *Experimenta Nova Anatomica*, gave the first description of the receptaculum chyli and the passage of the chyle through the thorax into the innominate vein. The error of the Galenic doctrine that the chyle was conveyed by the mesenteric veins to the liver was thus demonstrated. Aselli died in April, 1626, at the age of 45, and his book was published in the following year. His published work was entirely anatomical. His writings on toxicology and surgical cases have been lost, but the manuscript of his *Observationes Medicae* is preserved in the Trivulzian Library at Milan.

DISABILITY IN READING.

THE first series of the Harvard Monographs in Education are dealing with educational psychology and educational measurement; the subject of special disabilities in learning to read and write has already been dealt with, and Miss Elizabeth M. Hincks has followed this up by an investigation of *Disability in Reading and its Relation to Personality*.[1] Fifteen children, chosen only because of their difficulty in learning to read, and all but one of average general ability, were the subject of investigation, and eleven of them were studied intensively. Psychologically the Stanford revision of the Binet test was employed, and the tests of the mental processes concerned in reading were arranged in visual, auditory, and motor categories. Many non-readers are left-handed—a third of the fifteen children investigated were, thus contrasting with the normal 4 per cent.—and many who are not actually left-handed present traits which might be called "left-minded"; they begin to read a word from the right instead of from the left, "was" and "saw" being often bugbears for all non-readers. Miss Hincks is inclined to support the suggestion that some early transfer of handedness may have caused a disturbance similar to that of stammering, but resulting in difficulty in reading. There is much evidence of the influence of heredity, both from the literature and because in nine out of the eleven children tested there was a family history of difficulty in reading or spelling; either in the children or their families there was evidence of nervous traits, such as nightmares, hesitant speech, wilfulness, rudeness to elders, and emotional outbursts of crying. The eye movements, illustrated in a plate, of the children were irregular and uncertain, but improved, as did their behaviour, when, as the result of teaching, their power of reading got better. All the children showed very poor perceptions and memory for words as wholes, many lacked interest to the point of positive aversion for reading, and readily became fatigued thereby. Upon intensive psychological study they all, with one possible exception, showed difficulties and irregularities in the mental processes which are generally accepted as of primary importance in reading. The evidence brought forward is in favour of the underlying cause being a neurosis, and against the disability being due to congenital word-blindness, and therefore incurable.

[1] Harvard Monographs in Education, Series I, vol. ii, No. 2. Cambridge, Mass.: Harvard University Press; London: Milford, Oxford University Press. 1926. (Sup. roy. 8vo, pp. 92; 1 plate. 6s. net.)

MEDICAL EDUCATION IN CHINA.

MEDICINE as taught in Europe and America tends to assume certain national characteristics, and it is possible to recognize distinctive features in the different countries and universities. In China, however, medical education on a scientific basis is primarily cosmopolitan; besides the Chinese medical schools there are institutions founded and controlled by other nations, including Great Britain, the United States, Japan, France, and Germany. An attempt to depict the present state of medical education in China has been made in the August issue of the *China Medical Journal*. The only previous educational number of our contemporary was issued in September, 1909, when the editor, Dr. W. H. Jeffreys, defined the ideal of the time as being the laying of the foundations of a truly scientific practice of medicine in China, and the provision of a scientific medical literature. Of the thirteen medical schools described in that issue seven have disappeared, and there seems to be some diminution in the supply of medical graduates trained on the lines of Western science. Nine medical schools are described in the recent issue of the *China Medical Journal* as having educated 650 students, and it is estimated that, including the output of other schools in China, and also those Chinese who have graduated in Europe, America, and Japan, there are only about 1,500 to 2,000 practitioners of modern scientific medicine for a population of 450,000,000. About 500 medical students are at present receiving instruction in the nine schools, which are situated in Peking, Mukden, Changsha, Shanghai (two), Shantung, Chengtu, Hangchow, and Canton. Including students in other schools of lower grade, or attached to foreign medical schools, the number under instruction amounts to 1,000, of whom fewer than 200 graduate each year. Since there are about 600 mission and Chinese hospitals organized on Western lines the shortage of trained medical practitioners is obvious, and the difficulty can scarcely be dismissed as light-heartedly as by one of the leaders in the recent disturbances, who remarked: "We do not want your hospitals; there are so many people in China that the death of a lot doesn't matter." Some such callousness was manifest in the closing of the Canton Hospital, mentioned in our issue of April 24th (p. 753). We understand that regret for this action has been expressed, but the restoration of the activity of the hospital and its medical school is a far more difficult problem than its short-sighted assailants realized. Other hospitals which have been similarly afflicted include the school at Kung-Yee, which was one of the finest of the Chinese institutions, the Stout Memorial Hospital at Wuchow, and the Kerr Hospital for the insane, one of the only two mental hospitals in China. Dr. E. V. Cowdry, in a critical examination of the past divergence between arts and medicine in China, concludes that, while this has seriously hampered the propagation of knowledge about the laws of health, yet the future is by no means dark, since the Chinese more than any other people have always held learning in high respect. He believes, therefore, that when a strong Government is established there will be a great twentieth century renaissance in China, provided only that the spread of knowledge among the masses does not breed the contempt which springs from familiarity. The present editor of the *China Medical Journal*, Dr. J. L.

Adulteration of Food and Drugs.

The Ministry of Health publishes as a separate pamphlet the portion of its annual report which deals with its work under the Sale of Food and Drugs Acts. It is interesting to learn of the iniquities to which purveyors of food will descend, oblivious, apparently, of the fact that they must themselves consume food similarly adulterated by members of their class, even if they take care to avoid their own products. From the report for 1925-26 the manufacturer or producer seems to be just as guilty as the vendor. Thus an expensive preparation of cod-liver oil and malt was declared to contain all the virtues of the original preparations without the usual objectionable taste and stickiness. As a matter of fact the oil had been "hardened" and deodorized, so that the preparation was almost entirely devoid of vitamin A. Another manufacturer sold alleged ground almonds which were found to consist of ground apricot kernels. There is no need for surprise, therefore, that a street vendor in Hackney was found selling tea which contained iron filings and pieces of wire and nails. It is conceivable, in fact, that in many cases the vendor has been taken in by the manufacturer; as might have been the case, for instance, with the consignment of 9,000 chocolate Easter eggs, which were condemned as unfit for food because they contained quartz, glass, zinc, copper, and sawdust! Another ingenious manufacturer was under the impression that he had converted a chemically preserved and flavoured cordial into a "non-alcoholic invalid wine" by introducing a trace of quinine. In many cases it seems as if the manufacturer was experimenting to see how far some comparatively harmless adulterant would be tolerated. Thus in one packet of shredded suet—the form in which suet is now generally sold—one-third of the contents consisted of rice flour; and in a sample of custard powder stated to be made from real eggs the proportion of egg was considerably less than 5 per cent. As usual, cases of adulteration of milk were numerous. Practically one-twelfth of the milk examined was adulterated or below standard. A common defence in milk cases is that the cooling apparatus leaked. Sometimes, it appears, the leak is artificially produced. Six and a half per cent. of the total of all samples of food and drugs were found to be adulterated or not up to standard—a higher percentage than was found in 1923 and 1924.

Meditations of an M.O.H.

Dr. Cameron Kidd, Medical Officer of Health to the Bromsgrove and North Bromsgrove Urban Districts, does not confine himself in his reports to bald statements about the births, deaths, infectious diseases, and drains of his area. He prefers to regard the annual report as giving him an opportunity of ventilating his criticisms of sundry anachronisms, lay errors, and modern panaceas. Thus of erysipelas he says: "As far as any practical use goes this disease might be omitted from the list of notifiable diseases. . . . The medical attendant can surely be trusted to do what is necessary." He has been struck by the succession of ailments from which children suffer as the result of being sent to school at the age of 4, a tendency which is increased by the fear the mothers feel of the school attendance officer. Dr. Kidd says that his eye has been caught by paragraphs in daily papers proclaiming that "science has made consumption little more harmful than the common cold"; a statement which, he says, at the very least is misleading to the public. He holds strong views on the subject of birth control; he thinks that the really enlightened philosopher would prefer infanticide, for which arguments similar to those heard in the House of Lords debate last April can easily be used. Perhaps Dr. Cameron Kidd's feelings on birth control have been unduly aroused by the receipt of numerous advertisements offering him a commission if he will recommend to his patients various contraptions with euphonious labels. From the rest of the reports it appears that the health of Bromsgrove and North Bromsgrove is very satisfactory, though quite a large proportion of infantile deaths in the former district were due to premature birth and atelectasis. Even here, however, Dr. Cameron Kidd suspects the machinations of birth control.

Scotland.

Heredity in Mental Development.

A lecture entitled "Heredity, with special reference to feeble-mindedness," was delivered on December 9th by Dr. F. A. E. Crew, director of the animal research department in the University of Edinburgh, under the auspices of the Edinburgh Women Citizens' Association. Evidence derived from the study of the family histories of the mentally defective strongly suggested, he said, that feeble-mindedness was definitely a hereditary character transmitted from generation to generation in an orderly fashion through some existing mechanism. Objection might be raised to this view, because it seemed to disregard the very powerful influence which environment and training exerted during the development of mental qualities. Feeble-mindedness was an oft-quoted instance of a typical recessive character, but until this condition had been defined exactly, and it had been shown what acquired physical aberrations might lead to its development, it could not be finally accepted that a single factor difference existed between feeble-mindedness and normality. Pedigrees in which an unusual number of individuals of subnormal characters were present undoubtedly gave the impression that something was definitely being inherited. The conclusion was at least justified that to a considerable degree mental attributes, particularly those involving general ability and capacity, were based upon inherited factors. What was inherited, however, was only a capacity or predisposition, and what developed from it was in great measure dependent on environment and training. A person of average mental endowment who had developed himself to the full powers of self-expression was often more valuable than one of greater gifts who through indolence or lack of opportunity had failed to develop them. The latter person might, however, be a more desirable parent from the point of view of the race. Before education could advance humanity far, humanity must be capable of profiting by education. The present social fabric was full of weak patches which, under the present sentimental type of legislation, were protected at the expense of the sound parts. It was only when the general level was raised by sound legislation and higher morality that the teacher could find a good field for his activities.

Dairy Research in Scotland.

A considerable amount of discussion has arisen in regard to the decision of the Secretary of State for Scotland to place the management of the Dairy Research Institute, for the establishment of which an estate at Auchincruive, Ayr, and funds were recently provided by Mr. John M. Hannah of Girvan, outside the control of the governors of the West of Scotland Agricultural College. At a meeting of the governors of the college, held at Glasgow on December 10th, when Sir David Wilson, Bt., was in the chair, a communication from the Board of Agriculture was read, in which it was explained that the Secretary of State realized the importance of dairy research in Scotland, and suggested that the National Dairy School should be removed from Kilmarnock to Auchincruive, and that its management should be vested in a joint committee representative of the Agricultural College and of the University of Glasgow. The governors of the Glasgow College agreed to accept these recommendations, and to give the desired support to the establishment of the Dairy Research Institute at Auchincruive.

Welfare of Children.

The special aspect of child welfare consisting in the protection of the child against ill-usage or neglect by parents or other natural guardians was discussed at the annual meeting of the Edinburgh District Branch of the Royal Scottish Society for Prevention of Cruelty to Children, held in the City Chambers, Edinburgh, on December 7th. The report showed that during the past year 7,445 cases, involving 21,807 children, were reported to the society. Of these, 280 were submitted to the Procurator-Fiscal for prosecution, and in only 10 were the

England and Wales.

King Edward's Hospital Fund.

The Prince of Wales presided over the distribution meeting of the King Edward's Hospital Fund for London on December 14th, and read a letter from the King expressing his sympathy with the objects and activities of the Fund, and his satisfaction that it had been found possible to distribute the same amount of money as last year.

Lord Revelstoke, honorary treasurer, stated that the income for 1926 was less by about £18,000 than that for 1925, mainly owing to a decrease in the amount of legacies; fluctuation in the money received from this source was a contingency that had always to be remembered, and the prudent action of the council last year in retaining the sum of £9,000 had enabled the amount available for distribution to be maintained at £245,000, although the income had only been £236,000. The British Charities Association had contributed £15,000, as compared with £20,000 last year; donations, however, had increased from £22,829 in 1925 to £27,300, mainly owing to generous gifts of £10,000 from Mr. Albert Searle and of £7,000 from an anonymous donor, who had previously supported the Fund on more than one occasion. A grant of £39,750 from the Wells legacies increased the sum received so far from this source to £192,240, of which £177,750 had been distributed. Sir William Collins, making the annual statement on behalf of the League of Mercy, said there had been a falling off in some districts, attributed variously to the coal dispute, to the competition of contributory schemes, and to the practice of asking for payment from patients. The British Charities Association had provided £5,000 for distribution to voluntary hospitals in almost every county in England and Northern Ireland. The total contributed to the King's Fund by the League of Mercy now amounted to £398,034.

Sir John Rose Bradford, P.R.C.P., vice-chairman of the Distribution Committee, in presenting its report, said that the amount allocated for hospitals, including recovery and convalescent branches, was £243,000, the same amount as last year; a further sum of £2,000 was available for convalescent homes not attached to particular hospitals. The number of hospitals applying for grants was 136, as compared with 133 in 1925. There had been a further reduction in the hospitals showing deficits for the year, the total of available beds had been increased, and many new extensions had been undertaken. Grants towards extensions and improvements amounted to £35,475, as compared with £28,925 in 1925, while £207,525 was distributed for maintenance, as compared with £214,075 in the previous year. These figures were additional to £39,750 in grants to schemes of capital expenditure out of the Wells legacies; the total distribution for the year was thus £282,750. When all the extension schemes which were now being actively promoted by London hospitals had been completed the number of available beds would be 1,632 more than at the end of 1925. The rule had been not to assist in the establishment of new hospitals, or to entertain applications for grants from hospitals which had not been in existence in a properly constituted form for at least three years; the Distribution Committee now suggested that this rule should not apply to new hospitals required for areas where new populations had grown up since the date of the foundation of the Fund.

Lord Somerleyton, honorary secretary, presented a schedule containing a list of awards to hospitals, including recovery and convalescent branches. Among the larger grants were:

London Hospital, £15,625; Guy's Hospital, £11,500; St. Thomas's Hospital, £10,500; Royal Northern Hospital, £8,450; University College Hospital, £8,000; King's College Hospital, £7,500; St. George's Hospital, £7,050; St. Bartholomew's Hospital, £7,000; St. Mary's Hospital, £6,500; West London Hospital, £6,250; Charing Cross Hospital, £6,000; Westminster Hospital, £5,900; Metropolitan Hospital, £5,500; Royal Free Hospital, £5,500; Prince of Wales's General Hospital, £5,350; Royal National Orthopaedic Hospital, £5,000; Queen Mary's Hospital for the East End, £4,650; Miller General Hospital, £4,575; Queen's Hospital for Children, £4,175; City of London Hospital for Diseases of the Heart and Lungs, £4,100; Hospital for Sick Children, £4,000.

After Sir John Rose Bradford had presented the report of the committee on the distribution to convalescent homes not attached to particular hospitals, and the special distribution to hospitals out of the Wells legacies, the Earl of Donoughmore, chairman of the Management Committee, reported on the scheme of pensions for hospital officers and nurses. Many hospitals had already adopted the scheme; it was felt that the hospitals would be enabled to deal in a businesslike way with the problem of the superannuated hospital officer, and that the removal of uncertainty about the future would attract women into the nursing profession.

The Prince of Wales expressed his satisfaction that the receipts had been well maintained; the settled policy of the Fund was to increase distribution as far as could be done without incurring the risk of subsequent reduction. During 1925 more hospitals had reported a surplus of income over expenditure than in any other year since the war. Voluntary gifts had increased by £98,000; patients' contributions by £74,000; building receipts by £364,000; and the total receipts of all kinds for the year had reached the fine figure of £3,887,000. The hospitals, however, still required as much help from the King's Fund as before, because their work was growing as fast as their income. More beds had been made available, and still more were being provided. It was a mistake to suppose that the voluntary hospital system was incapable of expansion. The Fund was, therefore, asked to assist in maintaining the additional wards that were already open and in building others; more building schemes would be undertaken, and demands on the King's Fund would increase. The Wells legacies had helped to add 1,000 beds to the hospitals of London; to increase substantially the provision for dealing with accidents; and to meet the needs of the newly populated areas in outer London, where in some cases it was necessary to build a hospital, since none had previously existed. The income of the Hospitals Savings Association, which was quite independent of the King's Fund, although the Fund had helped to start it, had already reached £150,000 a year. Another enterprise which the King's Fund had assisted at its origin was the pensions scheme for nurses and hospital officers; this had now been taken over by the hospitals. The revised uniform system of hospital accounts, which had come into force this year, had been generally adopted in London as a condition of grants from the King's Fund, the Sunday Fund, and the Saturday Fund; in the provinces it had the backing of the Voluntary Hospitals Commission and of the Joint Council of the Order of St. John and the British Red Cross Society. The Propaganda Committee was thoroughly established as a valuable auxiliary to the Revenue Committee, and more than 200 applications by exhibitors for the hospitals film had been received. A vote of thanks to the Prince of Wales, moved by Lord Stanmore, was seconded by the Lord Mayor, Sir Rowland Blades, M.P., and carried with acclamation.

Cancer Campaign in Yorkshire.

The University of Leeds has adapted and equipped the two houses which, as we mentioned on August 14th (p. 320), have been acquired on a five years' lease for cancer research, pending removal to the new laboratory which is to be built by the University with the £25,000 given by Sir Algernon Firth. The two buildings have been converted into one. The chemical department occupies the ground floor, where there are two laboratories and a balance room for the use of Mr. H. J. Channon, who has previously been associated with Professor Drummond in the work on vitamins. On the first floor is the laboratory for the director, Professor R. D. Passey, and another laboratory for the assistant director, Mr. J. S. Young. The second floor contains a small room for experimental work, and an animal room fitted up for keeping the fowls required. On the same floor there is accommodation for one or two research students. Research work will, it is expected, be commenced in the building on January 1st, 1927.

following toasts were given: "The King," proposed by the President; "His Grace the Governor and Prosperity to Northern Ireland," proposed by the President, and responded to by his Grace the Governor; "The City of Belfast," proposed by Mr. James A. Craig, and responded to by the Lord Mayor of Belfast; "The Guests," proposed by Dr. R. W. Leslie, and responded to by his Honour the Recorder of Belfast, the Vice-Chancellor of Queen's University, and Viscount Bangor; "The Royal College of Surgeons in Ireland," proposed by Mr. P. T. Crymble, F.R.C.S., and responded to by the President of the College (Professor A. Fullerton, C.B., C.M.G.); and "The President of the Ulster Medical Society," proposed by Professor James A. Lindsay. The evening terminated by the singing of the national anthem. It was one of the largest dinners the society has ever held, and much praise is due to the honorary secretary, Dr. Maitland Beath, for his indefatigable labours to make it a success.

British Medical Association and the Royal Medical Benevolent Fund Society of Ireland.

It is stated in the report of the Royal Medical Benevolent Fund Society of Ireland for the year 1926 that the society received the "handsome amount" of £54 4s. from the British Medical Association. The receipt of this sum by the Irish benevolent society was mainly due to those members who effect their life, motor, and other insurances through the Medical Insurance Agency, British Medical Association House, Tavistock Square, London, W.C.1. At a recent meeting of the Irish Committee of the Association a resolution was passed strongly urging Irish members to effect their different insurances through the Agency, as so doing would mean substantial assistance for the funds of the Royal Medical Benevolent Fund Society of Ireland as well as securing for themselves the best unbiased advice with regard to all insurance matters.

Correspondence.

FRACTURE OF THE NECK OF THE THIGH BONE IN ADULTS.

SIR,—The discussion at the Royal Society of Medicine on December 6th, and your remarks in the JOURNAL of December 11th (p. 1133), will, I hope, be regarded as the funeral dirge and a well timed obituary notice for a type of teaching and practice which has survived too long.

The successful treatment of fractures of the neck of the femur in old people (your remarks refer for the most part to aged subjects) depends upon the proper reduction of the fragments and immobilization for a sufficient length of time. Accurate reduction in the case of a fractured neck is usually less difficult than accurate reduction in the case of a fractured shaft. Secondary displacements during treatment are not so common. Bony union is the rule, and not the exception, and the serious complications which are to be feared after all gross injuries to old people need no special mention in cases of fracture of the femoral neck.

I venture to think that Whitman, who was a pioneer, and those eminent authorities who took part in the discussion at the Royal Society of Medicine, do not realize how widespread is the same weary teaching and the same dreary pessimism which had their origin in the days of Sir Astley Cooper. We still hear of the danger of hypostatic pneumonia, the difficulty of obtaining union between fragments bathed in synovial fluid, the absence of periosteum from the neck of the femur, and so forth. The want of sufficient blood supply to the proximal fragment is an old and worn-out crutch used to support the results of inefficient treatment.

> "Such dupes are men to custom, and so prone
> To reverence what is ancient, and can plead
> A course of long observance for its use."

Astley Cooper's investigations were so imposing in the history of the surgery of bones that to this day posterity can scarcely be persuaded to believe what radiography reveals to its eyes. "The dissections which I have made," says Sir Astley Cooper, "have convinced me that fracture of the neck of the femur, when it is situated within the capsule, is never united by bone." The writings of Sir Astley Cooper are well worthy of study, but in our literary excavations we must carefully distinguish between the useless debris and the nuggets of pure gold. Dupuytren, on the other hand, pointed to many specimens in the Paris museums of intracapsular fractures united by bone. His methods of treatment were not far removed from the methods recommended by Whitman.

The Royal Society of Medicine discussed in the first place the best routine treatment for practitioners to follow, and afterwards the best course to pursue in hospitals equipped with the necessary skilled staff and appliances. The first is all-important in order "not to embitter the evening of life and compel an otherwise sound person to become an invalid."

To those who have not a skilled staff of assistants and appliances and who have wide responsibilities outside the realm of surgery I think the following hints might be acceptable:

1. The reduction of this fracture is of paramount importance, and is not difficult.
2. Anaesthesia is usually necessary, but need not be prolonged.
3. The limb should be fixed in the abducted position for about three months, and little or no weight-bearing allowed until six months have elapsed. (As in the case of other fractures, the time factor is variable.)
4. Whitman's plaster, Jones's frame, Thomas's splint slung over the side of the bed (the sound limb also in abduction), are effectual for maintaining reduction.
5. Weight and pulley extension without reduction is useless.—I am, etc.,

Dublin, Dec. 12th. W. I. DE C. WHEELER.

THE DEVELOPMENT OF VAGINAL OPERATIONS FOR GENITAL PROLAPSE.

SIR,—All who believe that the uterus is maintained within the pelvis by its connective tissue or other attachments seem to omit from consideration the forces at play within the abdomen, especially those occurring during general activity which constantly are tending to produce extrusion. Thus Professor Chipman, at the Congress of Obstetricians and Gynaecologists held in London in 1925, likened the uterus and its supports to a child seated in a swing suspended by ropes. To convert this into a truer analogy, the child and the swing and the ropes would have to be immersed in a medium of much the same specific gravity—for example, water. Suspended in air, the tension of the ropes must be considerable; suspended in water, the tension of the ropes is much less, or even disappears, for the pressure of the water tends to buoy up the swing laden as it is. In the first case, the tension of the ropes is considerable because "gravity" attracts the swing and its contents downwards with much greater force than it attracts the "medium" (that is, the air) in which the swing is "suspended"; in the other case, gravity attracts the water downwards with a force almost as great or as great as it attracts downwards the swing.

I have insisted for many years that the pressure in the abdomen and pelvis, which form a container for the viscera, is not due simply to the effect of gravity; but that in virtue of the musculatures forming the walls, the viscera are continuously compressed, in a degree, however, which varies with the posture and with the state of rest or activity of the individual. And I have shown that this compression of the viscera is related with general metabolism. On the one hand, it is related with the return of blood in the large abdominal veins to the heart (and thus with the aortic blood pressure); on the other, it is related with the flow of blood through the visceral capillaries, and so with the visceral response. Thus the visceral response is greater (within limits) when the average intra-abdominal pressure (the pressure of rest) is greater; and less when the intra-abdominal pressure is below average (as in enteroptosis and neurasthenics). Nor is it difficult to show that the intra-abdominal positive pressure is correlated with the negative intrathoracic pressure—a pressure which

persons charged acquitted. Most of the complaints arose in thickly populated districts, although a few occurred in rural areas. More interest was now being taken by the community in matters affecting child life, and legislation had granted powers to public authorities enabling them to devise schemes for strengthening the physical nature of the child, and even the rights of parents had been declared to be of secondary importance to the welfare of their offspring. There was some fear that the duties imposed on public authorities for improving the surroundings of the child might tend to confirm careless parents in laxness and indifference. The Lord Provost, who was in the chair, said that so long as parents were found who were totally regardless of their obligations to their children the need for this society was obvious. Professor Paterson said that, while many people nowadays were expressing faith in eugenics and the segregation of those unfit for parenthood, he personally had a great deal of faith in Nature, which he regarded as more satisfactory than the selection of suitable parents by a medical board. Nevertheless, it was true that in old days many children died of starvation, and that many at the present time were in circumstances in which they would starve if it were not for the public authorities. He also referred to the millions of money spent on educating children and to the activities of various associations connected with the Church. The chief causes of child neglect were intemperance, immorality, and gambling; it was surprising how prevalent gambling had become.

Public Health in Dumfries.

It has been announced that the appointment of medical officer of health for the Burgh of Dumfries has become vacant, owing to the resignation of Dr. Joseph Hunter, who was a part-time officer. The question of a successor has therefore arisen, and a number of local practitioners have signed a round-robin in the following terms:

> We, the undersigned medical practitioners of Dumfries and Maxwelltown, are unanimously of opinion that when the appointment of a medical officer of health comes to be made for the Burgh of Dumfries a whole-time medical officer be appointed, and that a deputation of practitioners would be pleased to meet the Public Health Committee of the town council with a view to discussing the matter.

We welcome this evidence of interest in public health administration on the part of the local profession—an interest which has been such a notable feature of the recent work of the Dumfries and Galloway Division. Though the proposal which has been made to the local authority does not appear to be the decision of the Division, we feel sure that it will receive the careful consideration it deserves.

Social Services in Scotland.

A meeting of the representatives of Scottish organizations interested in welfare work in Scotland was held in Edinburgh on November 12th for the purpose of forming a Scottish Council of Social Service. Sir John Lorne Macleod, who was in the chair, said that the same problems existed in separate areas, and a meeting ground for exchange of views and ideas had frequently been desired. A National Council of Social Service had been formed some years ago in England and had proved its usefulness and value in many directions. It should be clear that there was no intention of conflict with the existing public services. Voluntary effort had a great tradition of social service, and many social provisions now recognized as services for which the community was responsible had been initiated by voluntary enterprise. The council would be primarily a consultative body and should contain representatives of all branches of social effort. It would be able to frame suggestions for the local organization of voluntary work in relation to the work of local authorities. Captain Ellis, D.S.O., *M.C.*, secretary of the English National Council, explained that this body, after its formation in 1919, had helped in the establishment of local councils, and there was now growing up in England a new movement along the line of co-operative community effort which would have a marked effect as time went on. Colonel J. M. Mitchell, secretary of the Carnegie United Kingdom Trust, said that the trustees were satisfied that the theory of a National Council was right. If, however, the council hoped to have help from the trustees, this could only be for a limited period. A resolution was unanimously adopted to form a provisional committee to consider the proposal in all its aspects and to report.

Edinburgh Samaritan Society.

The report presented to the forty-eighth annual meeting of the Samaritan Society of the Royal Infirmary at Edinburgh on December 7th showed that during the past year 435 cases had been dealt with and 15,078 visits had been paid by the almoners of the society, who had also paid 606 visits in connexion with the social service scheme of the Royal Infirmary. The number of visits paid by the almoners had been more than during the previous year, and 3,800 garments had been distributed, as compared with 3,000 during the previous year. Cash payments to the amount of £1,825 had been distributed, an excess of £285 over the receipts. Mr. Henry Wade, C.M.G., F.R.C.S., in seconding the resolution, expressed on behalf of his colleagues the opinion that the society was an indispensable and integral part of the work in the hospital.

Ireland.

Ulster Medical Society.

Clinics in Canada and America were visited this autumn by Dr. C. G. Lowry, professor of midwifery, Queen's University, Belfast, and Dr. R. M. Beath, assistant radiologist to the Royal Victoria Hospital, Belfast, and at a meeting of the Ulster Medical Society on December 2nd, with the president, Dr. Nolan of Downpatrick, in the chair, an account of this visit was given. Professor Lowry said that he had visited the obstetrical and gynaecological hospitals at Montreal, Toronto, Chicago, Washington, New York, and Boston. The buildings tended to the "sky-scraper" type, with a free use of electric elevators. Special attention was given to ensuring quiet, and the rubber flooring used wore well, was easily cleaned, and did not stain. In some hospitals an electric bell-push was provided for each bed. In maternity hospitals five delivery rooms were supplied for every 100 beds. Green tiles were being increasingly used in operating theatres, as being less tiring to the eyes. The records kept were elaborate, and a great amount of care was taken to make them as perfect and reliable as possible. Many Canadian nurses were trained in Toronto, and the entrance examination to the nursing school was that for matriculation in the university. Their three years' training included maternity work, and the conditions of training, residence, and food were better than those in Great Britain. Maternity wards were often attached to, or formed part of, general hospitals. Great precautions were taken to protect babies in maternity hospitals from all sources of infection, and variation in temperature of the wards was avoided. The chief anaesthetics used were nitrous oxide, oxygen, and ether, followed by ethylene gas, which eliminated much of the post-anaesthetic vomiting; chloroform was very seldom used. Radium had been found to give excellent results in the treatment of cancer of the cervix. The number of students was strictly limited: McGill University admitted only 100 annually for medicine, and there was a long waiting list. The demand for admission to the Johns Hopkins Hospital was also far in excess of the numbers taken. Special study had been made of the 6,000 students in Toronto, who underwent a full medical examination, 2 per cent. being rejected as unfit, and about 5 to 7 per cent. being shown to have some physical disability. Dr. Beath said that the most outstanding feature he had noticed was the unlimited amount of money spent on the provision of apparatus of the newest type selected after careful discrimination.

The annual dinner of the Medical Society was held on December 9th in the Medical Institute, when the President, Dr. M. J. Nolan, Downpatrick, was in the chair, and about 140 Fellows, members, and guests sat down. His Grace the Duke of Abercorn, Governor of Northern Ireland, honoured the proceedings with his presence. The

(personally I do not concede that these have any clinical value, but are merely suggestive), clinical records are as yet unpublished. Doubtless they will be published, but it seems to me that to issue the antigen for sale prior to such publication is scientifically indefensible and wholly wrong in that if, as appears to me from reasons given below, the product is of no value, the only result will be unfairly to discredit vaccine therapy. Here we have a classical example of the evils of commercial exploitation. The anxiety to sell while the going is good can have only one result—namely, that when a really good type of vaccine is evolved it will be received with frigidity by those who have been bitten before.

I have had the opportunity, thanks to the courtesy of Messrs. Parke, Davis and Co., of trying immunogens. So far, in fifteen instances, I have been disappointed. Five cases were gonorrhoeal. One was a woman with chronic cystitis and much pus. No amelioration of the daily flow of pus was obtained after several injections of gonococcus immunogen. The infection was a pure one, and the bladder was washed out with weak boric acid and also permanganate. The other four were subacute and chronic cases, having the usual irrigation treatment, massage, sounds, urethroscopy, and so on. My assistant, who sees all the male cases, and myself came to the conclusion that immunogens had no effect for either good or ill on the duration of the complaint.

A case with a renal sinus discharging streptococci and pus was not benefited; a case of staphylococcal skin infection was apparently made worse. Lower dosage with the streptococcus combined immunogen, which contains staphylococcal products as well, was a failure. A patient with profound toxaemia from streptococcal cellulitis seemed to improve at first and then remained stationary until he was put on to antistreptococcic serum (Parke, Davis and Co.), when he began to improve at once, and made a complete recovery. This latter product is in an altogether different class, and is most excellent in its effects. I have used it and watched its use for years, and have a very high opinion of its value.

A case of boils in a mental patient was treated with an auto-immunogen of *Staphylococcus aureus*. At first she did well, and then relapsed completely, and is now on an autovaccine.

A case with fulminating streptococcal meningitis was given streptococcal immunogen without effect and died. Likewise a patient with a mixed influenzal and streptococcal pneumonia.

The other four cases were of pneumonia, and appeared to be uninfluenced by pneumococcus immunogen. Three of these were on the original type of immunogen.

Possibly I have been unlucky and others have had better results. If so, their publication is overdue; but, for my part, I still hold that *in vitro* tests are no criterion of what will happen *in vivo*, and that the more mutilated the product the more inert it is, and that the more natural autogenous vaccine is the better agent of immunity.—I am, etc.,

GEOFFREY SHERA, M.A., M.D.Cantab.

Eastbourne, Dec. 6th.

VISUAL STANDARDS FOR MOTOR DRIVERS.

SIR,—The article dealing with visual standards for motor drivers in the JOURNAL of December 18th (p. 1191) draws attention to the American Medical Association's recommendations. These recommendations appear to omit any reference to the field of vision, which is at least as important as the distant vision. My attention was drawn to the necessity for a good field by a case which recently came before me. The patient complained that although he had good sight he had had two minor accidents. In the first, he had collided with a wheelbarrow which had been left at the side of the road, and in the second, in turning a corner, he ran against a standard lamp-post. On examining his eyes I found that he had chronic glaucoma, with which was associated a considerable contraction of the field of vision. The cause of his trouble was obvious—as is the moral.—I am, etc.,

Bath, Dec. 19th. W. M. BEAUMONT.

TREATMENT OF ACUTE POLIOMYELITIS.

SIR,—As the unfortunate (or otherwise) medical man connected with Uppingham, may I crave for space for a few less or more disjointed remarks on poliomyelitis and the correspondence therewith.

In the JOURNAL for December 11th three letters appear under the heading "Treatment of acute poliomyelitis." Surely what is meant is "sequelae of," etc. One writer mentions "long view"—a matter of years. The acute stage is a matter of days; it is the paralysis which follows to which the writers evidently refer; and yet when we open a mastoid or drain a chest in empyema we do not talk of the adenoids, measles, scarlet fever, etc., which may have caused the ear trouble, or the pleurisy which was the root cause of the empyema. It is not well to mix up cause and effect. To my mind the treatment of acute poliomyelitis would deal with the invading virus before the cord is attacked. This is what ought to be aimed at, and is within the range of possibility provided an early and correct diagnosis is made. It must be early, for once the virus has settled on any part of the grey matter treatment is useless; we attempt to repair the damage.

In most diseases the reply of the organism to the invader is helpful—not so in poliomyelitis. The increased vascularity adds to the trouble, pressure putting out of action for a time adjoining cells. Further, poliomyelitis is a law unto itself in invasion or spreading. Leicester, with its depressed industrial population—depressed by reason of the coal strike—and without the advantages of Harley Street, suffers on a population basis about one-twentieth of Broadstairs. Evidently the ordinary rules do not apply; then for Heaven's sake why not say so, and try some fresh avenues?

I notice in the leading article in the same issue of the JOURNAL (p. 1129) that the Advisory Committee was called in consultation about a month after the disease appeared at Woolwich, and the date on the Lord Dawson and Dr. Collier Broadstairs circular is October 20th, on which date there were about fifty notified cases in Broadstairs; in both instances the epidemic was well under way. There would in the ordinary course of events be many infected people, with corresponding dangers; it is merely a matter of control *versus* prevention.

Uppingham dealt with the matter at the very outbreak. Our plans were wellnigh fixed in the event of a second case appearing in the school. Surely modern medicine is essentially intelligent anticipation. Following is no good—get in front and keep there!

During the correspondence on methods many times Pope's couplet comes to mind: "For forms of government let fools contest; whate'er is best administer'd is best."—I am, etc.,

Uppingham, Dec. 11th. WM. DUNN, M.B.

P.S.—We had only two cases in Uppingham School and district; this compares well with other centres.—W. D.

A MEDICAL ASPECT OF MINERS' SHORTER HOURS.

SIR,—As the son of a miner, I beg to agree with Dr. G. Arbour Stephens's view that the strain of seven hours' work is greater (and worse for the miner) than eight or nine hours' work.

Statistics are wanting, but may I give three examples of long hours, health, and longevity? Mr. Thomas Burt, M.P., the late father of the House of Commons, was healthy in body and mind till over 80 years of age; yet I believe he worked twelve hours a day in the mine. Mr. William Straker, the secretary of the Northumberland miners, is alert in body and mind at 70 years of age; and I believe he also worked twelve hours a day in the mine. My father started work at 8 years of age at 6d. a day in the Weardale lead mines; he worked twelve hours a day, and never saw the sun in winter in his youth; and he never had an aching limb in his life. He rose through all the grades of mining in lead, coal, and ironstone till he became a leading mining engineer, educating himself after his long hours in the mines; he died at 72 years of age from strain (not work) from running to catch a train with a heavy weight on his back.

is not simply concerned with the passage of air into and out of the lungs, but especially with the adequate flow of blood through the pulmonary capillaries, which obviously must vary with the needs of the individual.

A study of the levator ani led me to this conception of man. It was seen that the levator ani is not simply the relic of former tail-moving muscles, but that it presents as the most important part of a muscular parietes closing in the pelvic outlet; that in its function it acts as an obturator to the pelvis inferiorly, and not a passive but an active one, to emphasize which I called it the "sphincter of the pelvis." Visceral canals of necessity pass from the pelvis to the exterior; they traverse the pelvic floor, and though they have their own sphincters, when these are lacerated, occlusion of the canals depends on the pelvic floor. But the pelvic floor does not exist simply to prevent the exit of visceral contents: it exists primarily to prevent the exit of pelvic visceral parts.

Unless the viscera in the pelvis can be maintained within the pelvis during times of stress, the pressure within the abdomen, increased during such times, cannot be sustained. Thus the reason of the weakness complained of by many women with genital prolapse is clear. Each time they try to do anything the parts are extruded, or the extrusion is increased; the necessary pressure with the abdomen cannot be maintained. Instead of blood within the large abdominal veins being forced in greater measure to the heart, viscera in the pelvis are forced out of the body to greater extent. Thus the rise of aortic blood pressure, the concomitant of normal activity, cannot occur; all the body parts suffer, the individual feels weak, and in the worst cases is forced to an invalid life.

Although Dr. Nyulasy (November 13th, p. 907) says he has read my books in which this subject is dealt with, he leaves it out of the account when considering the effect of vaginal operations for prolapse. He believes the cardinal ligaments, in virtue of their non-striped muscle content, are the "main supports of the uterus"; and does not accept my statement that they "are not capable of sustaining the pressure which during life is continuously tending to depress the uterus." But if the cardinal ligaments maintain the uterus in the pelvis, how is it that the pressure beneath the uterus, between its cervical part and the pelvic floor—that is, in the ampulla of the rectum—varies with the position of the individual and the activity in play? This is so even when the gut is empty and its walls are opposed to each other, in which case a pressure can hardly be transmitted to it by way of the lumen from higher reaches of the gut. When the patient coughs, up shoots the mercury of the manometer. How could this occur if the cardinal ligaments sustain the uterus in place and prevent its descent or its tendency to descent, which the rise of pressure above, produced by cough, occasions? And each time the patient coughs the pelvic floor musculature can be felt (by palpation) to contract. Why? There must be some reason. If the paracolpos, the parametrium, and the pararectal tissue maintain the bladder, the uterus and the lower rectum in the pelvis, and are adequate to sustain the intra-abdominal pressure in all the phases of life, why when the intra-abdominal pressure is raised is the response of the pelvic floor increased? Why, indeed, should there be a pelvic floor? It is a question that Dr. Nyulasy should answer—and one that Dr. Bride might with advantage consider.—I am, etc.,

Rugby, Nov. 14th. R. H. PARAMORE, F.R.C.S.Eng.

POST-OPERATIVE RADIATION IN CANCER OF THE BREAST.

SIR,—In a discussion following Mr. H. W. Carson's paper on post-operative treatment of cancer of the breast, reported in the BRITISH MEDICAL JOURNAL of December 11th (pp. 1095-1097), very diverse views were expressed with regard to the value of *x* rays as a prophylactic.

To furnish direct proof of the value of prophylactic radiation is almost impossible. Its object is to maintain the *status quo*; and in any case where it is not maintained failure is manifest. On the other hand, where recurrence does not take place there is no certainty that, in an individual case, the radiation has prevented it. Finally, if recurrences follow quickly it is easy to blame the radiation, forgetting the cases which recur quickly when no *x* rays have been used. In discussions such as the one above referred to, only rarely does anyone say anything about the technique employed. The idea that all failures and even injuries which result from *x* rays are quite independent of dosage, frequency, area exposed, and so forth—in a word, that the directing mind does not count—dies hard. Unfortunately, the most diverse technique is employed by radiologists for prophylactic treatment, and in some cases patients are grossly overdosed. This is evident from the statements of some surgeons that their patients feel very ill after a prophylactic course, and ask not to have it repeated. One cannot but sympathize with Mr. Sampson Handley's plaint in a recent discussion at the Royal Society of Medicine that, although he welcomed the assistance of the radiologist, intensive therapy was not quite the sort of help he wanted!

If prophylactic *x*-ray treatment meant of necessity making a patient feel ill, it could not be justified. The patient *may* be all right if nothing is done; therefore no risk is permissible. So far, however, from a patient feeling upset after a properly administered course of radiation, she should have gained in strength. It is entirely a matter of the size and spacing of the doses. The dose should be of the order of 1.5 milliamperes, 40 cm. anticathode-skin distance, 3 mm. aluminium filter, 140 to 160 kilovolts; time ten minutes: tube diaphragm widely open. Twelve to eighteen such doses may be given for a course, at first three times a week, and later twice a week. A course of this kind may be commenced, in hospitals, as soon as the patient can be brought to the *x*-ray department. If there is any raw surface left in the wound, healing will be expedited and the patient's general health rapidly improves. This system is in vogue both at the French Hospital (London) and at the Croydon General Hospital, and is carried out, of course, with the full approval of the surgical staff. Of late we have combined sunlight treatment with the *x* rays, producing even better results as regards the general health. That the procedure advocated is constitutionally beneficial can be verified by inquiry from the surgical staffs concerned; to prove that it is an efficient prophylactic is another matter. But surgical testimony can be invoked to show that similar treatment is in some instances capable of rendering an inoperable growth operable, or even of causing the disappearance of cancerous nodules. Thus we have at our disposal a line of treatment which is (*a*) a general tonic, and (*b*) capable in some cases of bringing about shrinkage of malignant tumours. Not to use it as a prophylactic would be irrational in the case of anyone accepting the above propositions.

Nothing I have written is to be taken as an argument against the use of large *x*-ray doses in suitable circumstances. Intensive treatment may cause the disappearance of a cancerous tumour where milder measures have failed. But a "negative phase" obtains for a time, during which general body resistance falls; and at this period, should any distant metastases exist, they are apt to spring into activity. Intensive treatment should be looked upon as an alternative to operation in selected cases so far as the primary growth is concerned, and not as an adjunct to surgery. Attempts to use it as a prophylactic in cases which have already suffered from the shock of a major operation have brought discredit upon the method, and have no doubt in some instances tended to favour metastases.—I am, etc.,

London, W.1, Dec. 11th. F. HERNAMAN-JOHNSON.

ANTIGENS FOR THERAPEUTIC IMMUNIZATION.

SIR,—May I supplement the letter you were so kind as publishing in your issue of August 21st (p. 360) in respect of immunogens, as these products have been placed on the market with practically no published *clinical* evidence, so far as I know of?

Sir Thomas Horder has reported strongly in favour of them, but his paper contains no actual clinical records, and apart from this paper and that by Drs. Ferry and Fisher in the *Journal of Experimental Pathology*, which is concerned only with immunity tests carried out *in vitro*

work, and, though she well knew that the end was inevitable and could not be long delayed, she resolutely remained at her post until further work was physically impossible. She never thought of herself, but was always anxious to be of service to others. She was one of the most delightful and loyal of colleagues, and will be greatly missed by those with whom she worked at the Welsh Board of Health and by the medical officials of local authorities in Wales.

Colonel HENRY STOKER died on December 1st at the Royal Military College, Duntroon, Federal Territory, Australia. Dr. Stoker came of a very old professional family of three generations; he was the fourth of seven sons of the late Dr. E. A. Stoker of Dublin, all of whom followed their father's lead, with the exception of one, who selected dentistry. His grandfather (1773 to 1845) and father were leaders of professional thought in their time. Dr. Stoker was educated at Bective College, Trinity College, and the Royal College of Surgeons (Ireland); he obtained the diplomas of L.R.C.S.I. in 1884, L.R.C.P.I. and L.M. in 1885, and the F.R.C.S.I. and D.P.H. in 1895. He early decided to make his home under the Southern Cross; he was appointed sanitary officer to the Port of Melbourne, and his pioneer work in connexion with fly-borne diseases was valuable. His bent, however, was to surgery, and, settling in Wagga Wagga, he developed a large surgical practice, and became one of the leading operators in New South Wales. On the outbreak of war he joined the Australian Army Medical Corps and saw foreign service; he attained the rank of colonel, and after the cessation of hostilities the Federal Government marked its appreciation of his work by appointing him to the Royal Military College, Duntroon. Interested in all forms of outdoor sports, he will be remembered by contemporaries as a prominent member of the Wanderers Rugby Football Club, playing with his brothers, two of whom reached international standing, while he himself just missed this distinction, being selected for the reserves. Colonel Stoker took an active part in the work of the various medical societies of the Antipodes, and made an excellent president, being materially helped on the social side by his wife (a daughter of the late Mr. James Poe of Kilkenny), who was unhappily killed twelve months ago in a carriage accident, in which he also received injuries. He could not be induced to curtail his activities, but continued his work with a fine courage in pain and sorrow. Colonel Stoker leaves two sons.

Dr. WILLIAM ALEXANDER WADSWORTH, who died on November 21st, was educated at Galway, Belfast, and the Royal College of Surgeons in Ireland. He graduated M.D. R.U.I. in 1884, and obtained the diploma L.M.R.C.P.I. in the same year. Four years later he received the B.Ch. He then commenced private practice in Belfast, and later succeeded his two brothers. He was a magistrate of the city, and was keenly interested in the work of the Carlisle Memorial Methodist Church, of which he was a trustee and a member of the quarterly board for over thirty years. He was a member of the British Medical Association.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

As mentioned last week, Parliament was prorogued on December 15th. The following notes refer to medical matters which arose during the last day. A list of Acts of medical interest which were passed and of bills which for various reasons were abandoned is first given.

New Acts.

Acts which received the Royal Assent on December 15th and came into force immediately included :

Housing (Rural Workers) Act, empowering local authorities to give, with the approval of the Ministry of Health, assistance by grant or loan for reconditioning houses in rural areas provided that for twenty years such houses are occupied by agricultural workers or the like.

Births and Deaths Registration Act, requiring stillbirths to be registered; adding safeguards to the law of registration of death and of the disposal of bodies; enabling local authorities to arrange, in certain instances, for the medical inspection of a dead person.

University of London Act, setting up a body of commissioners with power to draft certain statutes for the University.

Wireless Telegraphy (Blind Persons Facilities) Act.

Workmen's Compensation (No. 2 Act), extending the period during which a review is possible of compensation payments to workers under 21.

Penal Servitude Act, increasing the maximum penalities for certain sexual offences.

Judicial Proceedings (Regulations of Reports) Act, restricing the reports of divorce proceedings and redefining the law against the publication of indecent details in other cases, including indecent physiological details.

The following statutes, which became Acts on December 15th, come into force later :

Coroners (Amendment) Act, regulating the qualifications, appointment and resignation of coroners and deputy coroners, requiring coroners to have either medical or legal qualification, and giving power in certain additional circumstances to hold an inquest without a jury and increasing the fees of medical men for attendance at inquests and *post-mortem* examinations. Comes into force May, 1927, with the exception of Section 4 (abolishing franchise coronerships), which is to be enforced at once.

Lead Paint (Protection Against Poisoning) Act, imposing fresh regulations from January 1st on the use of lead paint on internal work, and prohibiting, from November 19th, 1927, with special exceptions, the employment of women and young persons in such work.

Legitimacy Act, providing for legitimation by subsequent marriage.

Public Health (Smoke Abatement) Act, abolishing the obligation to prove the objectionable smoke is "black" and giving power to take proceedings against the emission of grit, gritty particles, and noxious vapours.

The following Acts of medical importance obtained the Royal Assent earlier in 1926 :

Economy (Miscellaneous Provisions) Act, reducing by £2,800 annually, from January 1st, the State grant to the Health Insurance Fund, and transferring to the Exchequer a surplus of £1,100,000 from the Navy, Army, and Air Force Insurance Fund.

Unemployment Insurance Act, extending the present system of unemployment insurance till December 31st, 1927.

Boards of Guardians (Default) Act, authorizing the Ministry of Health to supersede boards of guardians who do not observe the law.

Adoption of Children Act, authorizing adoption by sanction of the court.

Midwives and Maternity Homes Act, providing for the registration and inspection of maternity homes, amending the Midwives Act, and authorizing a revision of the register of midwives.

Chartered Associations (Protection of Names and Uniforms) Act, enabling associations to register uniforms and making the wearing of such uniforms without authority an offence.

Bills abandoned include :

The Factories Bill, Mental Deficiency Bill, Dentists Bill, Offices Regulation Bill, Protection of Animals Bill, Vaccination Bill, and Venereal Disease Act (1917) Amendment Bill. The first was a Government measure.

Dental Benefit.—In a reply to Sir Frederick Hall, on December 15th, Sir Kingsley Wood said it was proposed to appoint regional dental officers in connexion with dental benefit treatment as administered by approved societies. Applications for the posts had been invited by advertisements which did not restrict candidature to dentists holding any particular diploma. A Selection Committee had been set up, but appointments had not yet been made.

Spahlinger Treatment.—In a reply to Sir Charles Cayzer, on December 15th, Sir Kingsley Wood said local authorities were not encouraged to make use of the Spahlinger treatment for tuberculosis; it was not one of the special benefits to which insurance societies could apply their surplus, and no estimate could be given of the money needed to introduce the system of treatment on an extended scale in this country. The materials for a scientific investigation of the treatment in this country were not forthcoming.

Notes in Brief.

Out of 11,650,000 persons in Great Britain who are insured against unemployment, 600,000 to 650,000 are estimated to be aged 60 to 69 years.

The use of "brynite" is to be permitted in sausages and sausage meat.

The Home Office will consider whether the Introduction to Criminal Statistics should again give particulars of the apparent causes of murders. This return was discontinued in 1905.

Mr. Amery has stated that in Uganda vaccination was compulsory for all natives over 6 months. Exemption was allowed to persons who previously had small-pox, had been successfully vaccinated within five years, were certified to be unfit for successful vaccination, or were found insusceptible of successful vaccination.

Sir William Bull asked Mr. Chamberlain whether he had been advised on the exact legal position under the Venereal Diseases Act of chemists selling material for prevention together with printed or written directions for its use. Mr. Chamberlain replied, "Yes, Sir."

These cases appear to support Dr. Stephens's view, whilst I think that Dr. F. G. Bushnell's conclusions that "lower wages and longer hours lower the average physical condition" are open to question, as higher wages and shorter hours may lead to poorer food, pernicious amusements, and drinking habits. As regards the reduction of mining accidents following reduction of working hours in 1919, as compared, say, with those in 1908-12, Dr. Bushnell appears to take no account of the maximum time worked, nor of the greatly improved safety of mining (due to one of the best classes of citizens in the country—namely, the colliery managers). If I ride twelve hours in a motor car I am more likely to have an accident than if I ride only seven hours. And I am more likely to have an accident on a dangerous road than upon a safe one. These points Dr. Bushnell seems to have left out of count. And his opinion to account for the increase in accidents in 1923 and 1924 as due to "a worsening of the miners' wages" (the miners being probably the best paid class of workers in the country) will hardly, I think, bear the weight he places upon it.

In my opinion a healthy man or woman who objects to a life of eight hours' work, eight hours' leisure, and eight hours' sleep can hardly be regarded as an ideal or as an average citizen.—I am, etc.,

Newcastle-on-Tyne, Dec. 12th. T. M. ALLISON, M.D.

THE MEDICAL REGISTER: "UNTRACEABLE" PRACTITIONERS.

SIR,—The letter from "Your Adelaide Correspondent" in your issue of December 18th is likely to give an incorrect impression as to the methods adopted by the Council in regard to the correction of the *Medical Register*.

Once in every five years the *Register* is gone through very carefully indeed with a view to eliminating the names of practitioners who have died, or who have ceased to practise. An inquiry in accordance with the provisions of the Act is issued, and if no answer is received a reminder is sent; in those cases in which no answer can be obtained, or in which the inquiry comes back through the Dead Letter Office, efforts are made to obtain further information.

Section 14 of the Medical Act, 1858, states that it shall be lawful for the Registrar to write a letter to a registered person addressed to him according to his address on the *Register* to inquire whether he has ceased to practise or changed his residence, and if no answer is returned within six months it is lawful to erase the name of such person from the *Register*.

The Council, therefore, is under no obligation to do more than to send an inquiry to the registered address, but, within certain limits, it does what it can to trace practitioners by consulting works of reference, Colonial Registers, the Ministry of Health, and the British Medical Association, and, finally, by publishing a list of names of those in regard to whom no information has been obtained. In view of the fact, however, that there are 50,000 names on the *Register* there must be a limit to the search which can be made.

The officials of the British Medical Association at its headquarters are familiar with what is done, and, I think, would be willing to bear witness to the efforts made to trace practitioners, and to the desire of the Council not to erase names if this can be avoided.

No one who was unfamiliar with the work of this office could realize the great difficulties in getting some practitioners to answer inquiries which are sent to them. Medical men are very much occupied, and often have little time to deal with correspondence which they think is not pressing; but I am glad to say that the consistent efforts of the Council in recent years to impress upon practitioners the importance of keeping this office posted with a safe channel of communication is having its result, and practitioners are realizing far more than they did the importance of themselves notifying changes of address, and of answering inquiries which relate to the *Medical Register*, the only book in which the appearance of their names ensures their legal privileges.—I am, etc.,

NORMAN C. KING,
London, W.1, Dec. 18th. Registrar, General Medical Council.

MOTOR CAR INSURANCE.

SIR,—The Medical Insurance Agency, as a result of two unfortunate experiences which have come to its notice in the last few months, desires to draw the particular attention of medical men to the risks they run inadvertently and the liability which they may incur by taking motor car insurance policies with restrictive clauses.

The two most usual clauses are those by which one named driver only is permitted to drive, and by which the assured bears the first £5 or £10 of any claim. Both these restrictions, although saving some small amount in premium, may easily cause loss—perhaps serious loss—and certainly annoyance in the event of a claim arising.

For instance, if a doctor names himself as the only driver of his car, his car will be uninsured while it is being driven by a mechanic on test after overhaul or being returned to the garage by some other person at the doctor's request.

It is almost certain that there will be disagreement between the doctor and the insurance company or underwriters (where the doctor agrees to bear the first proportion of any claim) in cases where the fault would appear to be entirely with the third party. For instance, if a person be knocked down and killed through his own carelessness, the dependants, especially if there be children, are, as experience has shown, almost certain to be awarded something in the shape of compensation, although the owner of the car has been formally discharged free from all blame at the inquest. Such cases then are nearly always settled out of court, the insurance company and underwriters paying whether they have won or lost, rather than be mulcted in heavy law costs.

Regarding damage done by one car to another, the insurance companies sometimes have an arrangement between themselves whereby each side pays its own accidental damage claims, thus avoiding extensive litigation in assessing the blame. However, it should be borne in mind that such an arrangement between the companies does not prejudice the right of the owners of the vehicles to claim against each other for personal injuries at their own risk. —I am, etc.,

L. FERRIS-SCOTT,
Secretary, Medical Insurance Agency.
B.M.A. House, Tavistock Square, W.C.1,
Dec. 17th, 1926.

Obituary.

DR. LAURA WILLIAMS PUGH, medical officer of the Welsh Board of Health (Ministry of Health), died at her home in Brondre, Machynlleth, North Wales, on December 17th. She was the sister of the late Dr. Robert Pugh, medical superintendent of the Joint Counties Asylum, Talgarth, and received her medical education at Birmingham and Edinburgh, graduating M.B., Ch.B. Edin. in 1908. Later she obtained the D.P.H. of the English Conjoint Board. After serving for some years as assistant medical officer at the West Ham Union Infirmary, Leytonstone, she entered the service of the Monmouthshire County Council in 1914 as assistant school medical officer and medical officer in charge of the maternity and child welfare centres of the county. She was also an approved lecturer under the Central Midwives Board, and in that capacity delivered courses of lectures to midwives at the Tredegar Maternity Home. In 1923 Dr. Pugh was appointed by the Minister of Health to be the woman medical officer of the Welsh Board of Health, her duties including the inspection of maternity and child welfare schemes and maternity hospitals throughout Wales. A colleague writes: Dr. Pugh was a very capable officer, and soon became popular with officials of local authorities with whom she came in contact. She was a woman of strong character, and during her short period of office she succeeded in effecting great improvements in maternity and child welfare work in Wales. In February of this year she entered a nursing home in London to undergo an operation, but unfortunately she was found to be suffering from malignant disease for which no relief could be given. After a short period of rest she returned to her duties with characteristic courage until early in November, when she was compelled to retire. Dr. Pugh was devoted to her

The Services.

THE attention of medical officers, R.N., is drawn to Admiralty Fleet Orders 575-23 regarding the institution of the North Persian Memorial Medal. Intending competitors should communicate with the Department of the Medical Director-General before the end of the month.

DEATHS IN THE SERVICES.

Major Richard James Meredith, R.A.M.C., died suddenly at Wiesbaden on December 6th, aged 45. He was the eldest son of the late Captain Richard Meredith, 6th Foot (Warwickshire Regiment). He was educated at the Catholic University, Dublin, where he graduated M.B., Ch.B., and B.A.O. in 1904; he had taken the L.A.H. in the previous year. After filling the post of resident medical officer of the Government Lock Hospital, Dublin, he entered the army as lieutenant on January 31st, 1905, and became major on October 15th, 1915. He served throughout the recent great war.

Medical News.

MEMBERS of the British Medical Association are reminded that subscriptions fall due on January 1st in each year, and that if each member who receives an application for his or her subscription from the Head Office will send the amount to the Financial Secretary within the first week of the New Year the work of the office will be very considerably lightened. Members are also reminded of the claims of charity, to which reference is made elsewhere. The amounts at the disposal of those who administer medical benevolence are altogether insufficient to meet the appeals that are received, and the British Medical Association Charities Fund was formed in order to assist. Subscriptions or donations are urgently needed, and every member of the Association is asked to add to his next payment a sum for the credit of the B.M.A. Charities Fund.

DR. RUSSELL J. REYNOLDS, physician in charge of the Department of Radiology and Electro-Therapeutics at Charing Cross Hospital, who had been engaged for several years in the production of rapid serial skiagrams of the internal organs of the human body in motion on a cinematograph film, submitted a thesis on this subject in September, 1925, for the D.M.R.E. of the University of Cambridge, and received that diploma in March, 1926. He has since continued his experiments, and intends to read a paper on this work before the Röntgen Society on January 11th next. From paragraphs published this week in the newspapers it appears that experiments along similar lines have been in progress in the Anatomical Department at University College, London, and that a demonstration of them will shortly be given in London.

WE mentioned a few weeks ago that Dr. Lily Baker had been appointed to the honorary staff of the Bristol Royal Infirmary in charge of the ante-natal department. This is believed to be the first occasion on which a woman has been made a member of the full staff of a teaching hospital in the British Isles, except in connexion with the Royal Free Hospital, London. Other medical women connected with the Royal Infirmary have decided to entertain Dr. Lily Baker at dinner in order to afford her some public recognition of the distinction she has won. The department began in 1921 with the establishment of an ante-natal clinic under the general direction of the late Dr. W. C. Swayne, the professor of obstetrics. Dr. Lily Baker, who was then obstetric registrar, was responsible for the administration, and the results have been most satisfactory, the incidence of difficult and dangerous cases in the obstetric department having fallen by almost 50 per cent. The dinner will take place in Bristol on Friday, February 4th, 1927, under the chairmanship of Miss Frances G. Robinson, and among those who have promised to attend are Lady Barrett, M.D., Professor Winifred Cullis, D.Sc., Dr. Letitia Fairfield, and Sir Ewen J. Maclean of Cardiff. Tickets (price 10s. 6d. exclusive of wine) can be obtained from Miss F. G. Robinson, "The Towers," Sneyd Park, Bristol. It is hoped that many persons outside the medical profession who are interested in the higher education of, and professional careers for, women will attend.

THE Post-Graduate Hostel opens its new session at the Imperial Hotel, Russell Square, W.C.1, on Tuesday, January 4th, 1927, at 9 p.m., when Dr. Charles E. Goddard will give an address entitled "Lord Lister: by one who knew him." On Thursday, January 6th, at the same hour, Mr. Philip Turner will discuss imperfect descent of the testis. Dinner at 8 p.m. (5s.) and coffee and biscuits can be obtained at 6 p.m. (6d.). All medical practitioners are welcome. Ladies and friends of medical men are also invited to Dr. Goddard's address on January 4th.

THE Fellowship of Medicine announces that the Prince of Wales's General Hospital will hold an intensive course from January 10th to 22nd, 1927, in general medicine, surgery, and the specialties. The daily sessions from 10.30 a.m. to 5.30 p.m. will include demonstrations, operations, general hospital clinics, clinical lectures, and laboratory methods. The formal lectures at 4.30 p.m. are open to members of the Fellowship. Beginning also on January 10th there will be a two weeks' course in diseases of children at the Royal Free Hospital, and the Children's Clinic. At the Bethlem Royal Hospital, from January 11th to February 5th, a series of lecture demonstrations on psychological medicine will be given on Tuesdays and Saturdays, at 11 a.m. The National Hospital for Diseases of the Heart will hold a course in cardiology from January 17th to 29th, limited to an entry of 20. For courses in obstetrics at Queen Charlotte's Hospital and the City of London Maternity Hospital personal application must be made to the Fellowship, which can also make arrangements for the appointing of clinical assistants at the Samaritan Hospital for Women. On January 27th the series of lectures arranged by the Fellowship on emergencies in medicine and surgery will be resumed. Clinical demonstrations in surgery and ophthalmology will start in January. Copies of all syllabuses of the special courses, the programme of the general course of work, and the *Post-Graduate Medical Journal* can be obtained from the Secretary of the Fellowship, 1, Wimpole Street, W.1.

DR. GEORGE JONES, lecturer on forensic medicine and hygiene, London Hospital Medical School, and Dr. G. C. Taylor, M.O.H. Berkshire, have been elected life Fellows, and Dr. R. K. Brown, M.O.H. Bermondsey, Dr. W. A. Daley, M.O.H. Hull, Dr. F. N. Kay Menzies, M.O.H. to the London County Council, and Dr. G. C. Hancock, a medical officer of the Ministry of Health, have been elected Fellows of the Royal Sanitary Institute.

THE National Temperance League has removed to 33, Bedford Place, Russell Square, W.C.1.

THE Minister of Health has issued a circular (No. 751) giving the dates on which the amended regulations, 1925, with reference to preservatives in food will come into operation. Arrangements are being made for the printing of the principal regulations as amended, and copies will be obtainable in due course through any bookseller, or direct from H.M. Stationery Office.

THE Lead Paint (Protection against Poisoning) Act, 1926, which aims at preventing lead poisoning in the painting of buildings, will come into force on January 1st, 1927. On and after that date every medical practitioner attending on, or called in to visit, a patient whom he believes to be suffering from lead poisoning contracted in or in connexion with the work of painting buildings, is required to send to the Chief Inspector of Factories, at the Home Office, London, S.W.1, a notice stating the name and full postal address of the patient. He is entitled, in respect of every such notice, to a fee of 2s. 6d. Any medical practitioner failing to send such notice is liable to a fine not exceeding 40s.

DR. FROMENT, the well known neurologist of Lyons and joint author of a work on hysteria with Dr. Babinski, was recently stabbed in the lung by one of his patients during a visit to the hospital and lies in a precarious condition.

THE restrictions imposed on the movements of the cadets and staff of the Royal Military Academy, owing to the occurrence there of cases of poliomyelitis, were withdrawn on December 13th; but all public entertainments in Woolwich were placed out of bounds for the remainder of the term, and the careful medical inspection of the cadets, already described, was maintained. The restrictions on the movements of the cadets and staff of the Royal Military College, Sandhurst, which had been imposed by the War Office owing to the occurrence of cases of poliomyelitis at Camberley, were withdrawn on December 11th, but the village of Camberley remained out of bounds until the end of term. Owing to the occurrence of a case of infantile paralysis in the family of one of the staff the restrictions had to be reimposed. The term has, however, now come to an end at both institutions and the cadets have dispersed to their homes.

UNDER the will of the late Mr. A. B. Bosher of Tunbridge Wells one-half of the residue of his real and personal estate, amounting to between £80,000 and £100,000, is left to the Lord Mayor and Corporation of London for distribution among such hospitals in the administrative County of London as they may select.

THE German Museum of Hygiene at Dresden has recently been made the seat of an Academy of Hygiene under the direction of Professor Weisbach.

PROFESSOR FERDINAND SAUERBRUCH of Munich has succeeded Professor Otto Hildebrand in the chair of surgery at Berlin University, and Professor Stepp has succeeded Professor Minkowski as director of the medical clinic at Breslau.

Universities and Colleges.

UNIVERSITY OF OXFORD.

AT a congregation held on December 17th the degree of Doctor of Medicine (D.M.) was conferred on D. T. Barnes.

UNIVERSITY OF CAMBRIDGE.

AT a congregation held on December 18th the following medical degrees were conferred:

M.B., B.CHIR.—J. M. Doble, H. H. Fisher.
M.B.—G. W. S. de Jersey, H. M. Woodman.

UNIVERSITY OF LONDON.

A MEETING of the Senate was held on December 15th. The Vice-Chancellor stated that an offer had been received from a lady, who desired to remain anonymous, of £10,000 towards the establishment of a Chair of Dietetics.

An offer by Lady Godlee of a sum of money (to be held in trust for University College and University College Hospital Medical School) to found a Rickman Godlee Lectureship in memory of her husband, the late Sir Rickman J. Godlee, Bt., F.R.C.S., was accepted, and Lady Godlee thanked for her gift.

Percival Hartley, D.Sc., was awarded the William Julius Mickle Fellowship for 1927 (of the value of about £280) in respect of the work which he has carried out during the past five years on special problems in connexion with diphtheria and other problems of a more general character in connexion with serology and immunity.

UNIVERSITY OF BIRMINGHAM.

AT a congregation held on December 17th the following medical degrees were conferred:

M.D.—Gilbert Henly, Dorothy Jeyes.
M.B., CH.B.—Edna E. Adams, Florence I. Beech, N. Gindi, N. Iskander, Louise A. Johnson, C. Mani, R. Nicklin, G. R. Orchard, H. A. Picton, Hilda H. Reeves, K. Rophaeel, F. J. Swinton-Esher, P. Symons.

UNIVERSITY OF LEEDS.

AT a meeting of the Leeds University Council held on December 15th it was announced that the Leeds City Council had decided to renew its grant to the University for the academic year ending July 31st, 1927, of a sum equivalent to the product of 1d. in the £.

Sir Berkeley Moynihan.

A letter was received from Sir Berkeley Moynihan, Bt., P.R.C.S., resigning the Professorship of Surgery, on his retirement from the full staff of the Leeds General Infirmary. The following resolution was passed:

> The Council records with great regret the retirement of Professor Sir Berkeley Moynihan from the Chair of Surgery. It would take this opportunity of expressing its warm appreciation of the great services which he has rendered in the advancement of the science and art of surgery. It will always be a matter of gratification to the University that so distinguished a representative of this great profession received his early training for his life's work at the Medical School at Leeds. After a brilliant career as student in the Yorkshire College, with which the Leeds Medical School became incorporated, he served in the General Infirmary as house-surgeon, resident surgical officer, honorary assistant surgeon, and honorary surgeon, and in the academic offices of honorary demonstrator of anatomy, professor of clinical surgery, and professor of surgery. Throughout his career he has followed the tradition of the Leeds Medical School in bringing all scientific knowledge into the service of surgery. With this he has associated a consummate skill in the art of surgery, thereby contributing substantially to the efficacy of surgical methods and the accuracy of diagnosis. The value of his labours to the institution has been augmented by his ready loyalty to it as his Alma Mater. The Council desires to offer its best wishes for his happiness and success in the distinguished office which now engages his energies.

Cancer Research.

Miss D. M. B. Gross, M.B., Ch.B., was appointed part-time assistant in experimental pathology and cancer research.

UNIVERSITY OF LIVERPOOL.

THE following candidates have been approved at the examinations indicated:

M.D.—A. R. D. Adams, C. Cookson, F. Earlam, T. Hare.
M.CH.ORTH.—R. W. Jones, B. L. McFarland, M. M. Riad.
FINAL M.B. AND CH.B.—*Part III*: H. W. Alischul, H. E. Barrow, G. S. Clouston, W. A. Davies, K. Edmundson, R. W. Eldridge, A. B. Follows, E. E. Glenton, Catherine E. I. Greenshields, J. Hallam, Elizabeth M. Harding, W. E. Hargreaves, Mary Hope-Simpson, E. Hulme, J. Kaus, M. A. Lombard, A. G. Massey-Lynch, S. A. Walker, Joan Watkins. *Part I*: S. Alstead, *E. T. Bates, S. Canter, H. F. Cohen, *T. B. Davie, Ariel R. S. Deacon, T. L. Dowell, R. J. Doyle, Ruth M. Fennell, J. H. Follows, Agnes G. Gillespie, R. G. Gornall, J. J. Graham, G. T. Harris, W. E. J. Jones, *T. Lasker, N. R. Lawrie, J. M. Leggate, H. Leiper, C. T. Mercer, Doris Morrison, Winifred O'Callaghan, J. Pasvolsky, H. Paterson, E. E. Prebble, E. L. Rubin, M. Silverstone, *H. W. Smith, G. G. Warburton. *Part II*: A. E. Adams, Gladys A. Coventry, A. W. Green, J. G. Hattingh, R. E. Jackson, Edna Morris, G. W. Phillips, J. L. Walker, J. Williamson.
DIPLOMA IN TROPICAL MEDICINE.—T. A. Austin, W. W. Besson, †J. McP. Campbell, H. A. A. Doherty, J. C. St.G. Earl, Beatrice N. Fletcher, J. Hamilton, J. H. Kennedy, L. D. Khatri, C. F. McConn, K. L. Malhautra, S. L. A. Manuwa, Winifred H. Mitchell, W. S. Ormiston, F. L. Patterson, V. Puri, A. Robertson, J. G. S. Turner, C. Volgt, S. N. Wasti.

* With distinction.
† Recommended for Milne medal.

VICTORIA UNIVERSITY OF MANCHESTER.

THE following candidates have been approved at the examinations indicated:

FINAL M.B., CH.B.—Helen G. M. Bennett, P. Bester, H. V. Crabtree, Margaret Egan, E. Firth, E. Heard, J. Hunt, G. W. Jones, J. Parnas, H. Pigott, R. H. Poyser, Mary I. Prentice, L. Rosenthal, B. R. Sandford, W. S. Slater, D. Starr, Florence V. Stephen. *Forensic Medicine*: S. Bernstein, Vera Urmson, G. R. Walker. *Medicine*: G. R. Walker. *Hygiene and Preventive Medicine*: R. H. Barnes, S. Bernstein, R. Edmondson, Dorothy Guest, J. Kemp, G. L. Normington, L. C. Peringuey, I. M. Preston, Nora Ridehalgh, R. F. Sheppard, R. H. Tootill, Vera Urmson. *Obstetrics and Surgery*: R. S. Abraham, Dorothy Arning, H. Aratall, A. H. Baker, Doris Bernard, Dorothy E. Bradley, Muriel M. Edwards, A. Hancock, G. D. Hithersay, J. E. Jones, J. Kemp, H. E. Martin, R. Newton, R. P. Osborne, H. A. Palmer, G. H. Racklyeft, Norah Regan, M. Robinson, L. Rosenthal, Eleanor L. Schill, H. Townley, F. F. Waddy, Josephine Walmsley, K. R. Watkins. *Obstetrics*: S. K. Appleton, H. J. Brennan, S. L. Bowley, A. Thomas.

UNIVERSITY OF SHEFFIELD.

THE following candidates have been approved at the examinations indicated:

FINAL M.B., CH.B.—G. H. Arnison, Edna M. Stedeford.

UNIVERSITY OF EDINBURGH.

AT the graduation ceremonial held in the Upper Library Hall on Friday, December 17th, the following degrees were conferred:

M.D.—*Jessie Gordon, Margaret H. Gordon, Flight Lieutenant R. T. P. Grace, R.A.F.M.S., Major W. T. Graham, R.A.M.C., A. A. Hamilton, *Captain K. R. K. Iyengar, I.M.S., E. W. Kirk, J. H. D. Lewis, Lieut.-Colonel J. R. Lord, C.B.E., R.A.M.C., *J. S. Macgill, D. Macmillan, Dorothea J. Mann, P. S. Meiring, W. G. Patterson, †E. H. Ponder, W. A. Simpson, A. F. Smith, G. Somerville, J. P. Steel, *Isabel G. H. Wilson,
M.B., CH.B.—H. El S. Abaza, J. D. Ackermann, A. Ahmed, J. B. Annan, T. W. Banks, F. W. Clark, A. B. Cowan, I. R. Duthie, V. Dyrian, W. D. Forsyth, E. H. Griffiths, Euphemia T. Guild, Janet W. Jackson, Eva G. John, Isabella M. Marshall, Eugene P. L. L. Masson, W. H. Moore, Katherine M. Muirhead, K. B. Mukerjea, G. Nahapiet, J. G. Pau, M. R. J. Peters, F. W. Pringle, W. H. Ross, Janet C. Ronaldson, Roma M. Ross, G. A. Ryrie, J. Singh, Mary Steven, F. Sutherland, Winifred E. Wall, Marjorie S. Waterston.

* Commended for Thesis.
† Awarded Gold Medal for Thesis.

UNIVERSITY OF ABERDEEN.

A MEETING of the Aberdeen University Court was held on December 14th.

Intimation was received from the Senatus that Professor Marnoch had been appointed as Assessor to the Court, in succession to Professor Matthew Hay, for the period to November, 1928, and that Professor Ashley W. Mackintosh had been reappointed for the period to November, 1930.

Dr. Robert Richards was appointed to take charge of the Department of Forensic Medicine for 1926–27.

Professor Hugh Maclean, M.D., of St. Thomas's Hospital Medical School, was appointed additional Examiner in Physiology for three years from February 1st, 1927.

Dr. H. J. Rae, M.O.H. Aberdeenshire, was appointed interim additional examiner for a special examination in Part II of the Diploma in Public Health.

The resignation was accepted of Dr. Allan W. Downie as Georgina M'Robert Research Lecturer on Malignant Disease on his appointment as Assistant Lecturer in Bacteriology at the Victoria University, Manchester.

Emeritus Professor R. W. Reid was appointed a member of the Museum Committee.

Mr. Theodore Watt was, on the recommendation of a special subcommittee, appointed honorary editor of the Supplementary Roll of Graduates.

QUEEN'S UNIVERSITY, BELFAST.

A SPECIAL meeting of the Senate of the Queen's University, Belfast, was held on December 15th when the Pro-Chancellor, Sir William Whitla, M.D., presided.

Dr. N. C. Graham was, on the recommendation of the Board of Curators, appointed to the J. C. White Lectureship in Bacteriology.

Professor W. St.C. Symmers, Dean of the Faculty of Medicine, and Mr. Andrew Fullerton, C.B., Professor of Surgery in the University, were appointed to represent the University on the Irish Cancer Research Committee.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

AT a meeting of the College, held on December 15th, when Dr. A. Logan Turner, President, was in the chair, the following 30 successful candidates, out of 59 entered, who passed the requisite examinations, were admitted Fellows:

D. Band, C. G. H. Blakemore, W. S. Burr, P. V. Cherian, G. R. Davidson, J. K. Davidson, R. Dick, H. H. Fisher, Ada Furniss, J. J. Gearin, C. de W. Gibb, I. S. Hall, A. Hopkins, J. S. Hovell, D. Hyslop, D. S. M. Jones, C. D. Kennedy, F. Kennedy, H. S. Kenrick, H. A. Khin, I. T. Kunaratnam, R. H. Lucas, A. W. McCay, J. I. Noble, R. D. Owen, J. R. Paterson, C. E. Scott, C. H. Swanton, A. A. Tennent, R. Thurston, J. W. Dawson.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the BRITISH MEDICAL JOURNAL alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the BRITISH MEDICAL JOURNAL must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the JOURNAL, should be addressed to the Financial Secretary and Business Manager.

The ***TELEPHONE NUMBERS*** of the British Medical Association and the BRITISH MEDICAL JOURNAL are *MUSEUM 9861, 9862, 9863,* and *9864* (internal exchange, four lines).

The ***TELEGRAPHIC ADDRESSES*** are:

EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology Westcent, London.*

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MEDICAL SECRETARY, *Mediaeva Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 4737 Dublin), and of the Scottish Office, 6, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 4361 Central).

QUERIES AND ANSWERS.

TRANSLUCENT TISSUES.

MR. STANLEY F. WOODWARD (laboratory assistant, Medical Research Institute, Sekondi, Gold Coast) writes in reply to Dr. S. G. Moore's inquiry (October 2nd, p. 620) that the method of Professor Spaltebolz consists of injection of the vessels, followed by thorough dehydration, bleaching, and clearing by benzol and oil of winter green, and finally, mounting in this oil, glycerin, or liquid paraffin. It appears, therefore, that the method is scarcely applicable to the cornea of the living human eye.

SUNLIGHT CLINICS.

A CORRESPONDENT who is interested in the establishment of a sunlight clinic and children's hospital asks for advice as to the best type of lamp. Opinions, as he has found, differ widely, and we cannot profess to speak with authority, but we are advised that for general artificial sunlight baths the carbon arc type is the more efficient, inasmuch as it gives off a larger amount of rays. It compares unfavourably with the mercury vapour lamp as regards running expense, and also from the point of view of attention, the carbons requiring constant care. Also it is not suitable for local treatment, whilst the mercury vapour lamp is. The firm of W. E. Schall, 75, New Cavendish Street, London, W.1, has issued a bulletin (No. 1002) on ultra-violet therapy which would perhaps prove useful in making a choice; apart from illustrations and particulars as to cost, etc., there a few pages in which the theory and various points as to the different lamps are discussed.

INCOME TAX.

Assessment of Practice: Cash Basis.

"A. M. M." succeeded to a practice on September 1st, 1924, and for the year to April 5th, 1926, he was assessed on the average of two years and five months of his predecessor's earnings *plus* the earnings of himself for the seven months to March 31st, 1925—both periods being dealt with on the cash basis. The inspector has now objected to accepting the accounts for the following year (to March 31st, 1926) on a cash basis, and apparently intends to claim an adjustment, for the purpose of the assessment for 1926-27, which will cover the original seven months' account. Is this justified?

*** In our opinion it is justified, at any rate for the purpose of the 1926-27 assessment. It is necessary for "A. M. M." to bear in mind that as his predecessor's collection of cash for his own services is not reflected in the amount of the profits declared for the seven months to March 31st, 1925, that amount is less than the full earnings of the practice to include the value of debts being placed on the books. There was, so far as we are aware, no such factor in the case of "C. W. S.," referred to by our correspondent. The principle involved is fairly plain. A practitioner is liable on the full earnings of the practice, whether received in cash or not; where, taking one year with another, the cash receipts fairly reflect the gross earnings, then there is no reason why troublesome and difficult estimates as to the probable value of outstanding debts should be necessary. But when the fundamental condition fails the cash basis cannot properly be insisted upon—especially as a practitioner ceases to be liable on his receipts as soon as he retires from the practice.

Motor Car Transactions.

"L. S. G." bought a 11.9 h.p. X car in December, 1922, for £340 (present-day price £275) and sold it in December, 1926, for £20 buying a 14-h.p. car of similar make for £295. What allowances are due?

*** (1) Depreciation allowance for 1925-26 at 20 per cent. on, say, £200—that is, £40; for 1926-27 on £200–£40=£160—that is, £32; for 1927-28, £295 at 20 per cent.—that is, £59. (2) Obsolescence allowance to be deducted in computing the amount of the profits for 1926—£275, less £90=£185, less depreciation allowances on car displaced—that is, £72—that is, £113.

Assessment of Garage.

"H. K." has rented a piece of land on a seven years' agreement for £3 3s. per annum and erected thereon a garage at a cost of £75. The local authorities' permission was granted as for a temporary structure only and must be renewed annually. Is the property assessable to tax on the annual letting value, or merely on the amount of the rent?

*** In our view on the full letting value, assuming as we do that the structure is built into or rests directly upon the soil. The rental value placed upon it, however—namely, £18—seems high, as compared with the cost and the rent paid, but we have, of course, no means of judging the local demand for garage accommodation.

LETTERS, NOTES, ETC.

MINERS' SHORTER HOURS.

DR. J. M. MACPHAIL (Middlesbrough) writes: Dr. Arbour Stephens's conclusions (November 13th, p. 906) make one think, be his statistics right or wrong. In the industrial North the men feel that with modern speeding-up men of over 50 years are not likely to be much in demand. It has been a pleasing theory for many years amongst those who do not overwork that "work never kills, but worry." Yet a good worry may even keep people alive. I have seen many deaths due to hard work and but few to worry.

NOMOGRAPH FOR THE DUBOIS FORMULA.

DR. JAMES KERR (Colinton) writes: Attention has been called by Dr. W. M. Feldman to omission of his name or any reference in connexion with a nomograph used on page 97 of the first issue of my recent book on *The Fundamentals of School Health*. This was a pure accident, due to transfer of the figure from the chapter on "statistics" to that on "nutrition." In a work where there are some thousands of references some errors of omission or commission were almost bound to occur. In this case the omission was dropping of the reference (*Lancet*, 1922, i, 273).

*** A review of Dr. James Kerr's large and important work was published last week (p. 1184).

VERMINOUS HOSPITALS.

MR. A. MCKIE REID, *M.C.*, M.B., F.R.C.S. (Liverpool), in the course of a note on his own experiences, writes: Mr. Bishop Harman, in his article on "The modern hospital conception" in your issue of November 27th, refers to verminous hospitals of a bygone age, and states that "to-day we know nothing like them," citing as the last recorded example a "buggy" hospital in South Africa during the war in 1900. For many nights in August and September, 1918, when in No. II lazaret in Spandau, near Berlin, as a wounded prisoner of war, my sleep was disturbed and prevented by bed-bugs. I caught, identified, and destroyed many and displayed them to the German authorities, whose invariable reply was a shrug of the shoulders, and by whom no action whatever was taken. Later, at Beeskow-in-der-Mark, Brandenburg, I found the beds infested by fleas.

AN ADVERTISEMENT AGENT.

WE are informed by Dr. Kerr, M.O.H. Newcastle-on-Tyne, that a person representing himself to be an agent for "Valdar's Medical Blue Book" (177-8, Fleet Street) has recently called upon the manageress of a nursing home in Newcastle, stating that he had a list of nursing homes divided into "good" and "bad," and inviting an advertisement of the home in the "Blue Book." He appears to have stated that the classified list had been supplied by the medical officer of health, but Dr. Kerr informs us that he did not supply it. There seems some reason to believe that an agent of the book has been canvassing in London, and it is possible that he may have extended his activities to other towns. The Headquarter offices of the British Medical Association know nothing of the project.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 35, 38, 39, and 40 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 36 and 37.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page *260*.